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ABSTRACT

As a follow-up to the 1972 Management Information Systems (MIS) Summer Training Institute held at Tennessee A & I State University, two in-service training sessions were held in Atlanta, Georgia, October 1972 and February 1973. This document highlights reports and presentations for the October and Febraury sessions. Topics cover: introduction to management systems; management information requirements; evolving concepts of recruitment; admissions and records; developing and improving efficiency in higher education; generalized data management systems in the small college computer centers; institutional research; basic linkages and relations among college and university structures and personnel; cooperation within the institutions; and a systematic approach to proposal writing. (MJM)

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REPORT ON
IN-SERVICE SESSIONS
OF THE
MANAGEMENT INFORMATION SYSTEMS

OCTOBER, 1972 FEBRUARY, 1973

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MANAGEMENT INFORMATION SYSTEMS

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The Institute for Services to Education (ISE) was incorporated as a non-profit organization in 1965 and subsequently received a basic grant from the Carnegie Corporation of New York. The organization is founded on the principle that education today requires a fresh examination of what is worth teaching and how to teach it. ISE is a catalyst for change. Under grants from government agencies and private foundations, ISE undertakes a variety of educational tasks working cooperatively with other educational institutions. It does not just produce educational materials or techniques that are innovative; it develops, in cooperation with teachers and administrators, procedures for effective installation of successful materials and techniques in the colleges.

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The Management Information Systems portion of the TACTICS program under the aegis of the Institute for Services to Education, Inc., has as its mandate to train college administrators in the development of information systems. This particular institute was designed for that purpose. The other mandate, for which groundwork has been laid, is the development of a data bank containing facts and figures on the Black Higher Education Community.

REPORT ON
IN-SERVICE SESSIONS OF THE
MANAGEMENT INFORMATION SYSTEMS

Prepared by

James A. Welch, Director
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PREFACE

As a follow-up to the 1972 Management Information Systems (MIS) Summer Training Institute held at Tennessee A&I State University, two in-service training sessions were held in Atlanta, Georgia, October 26-27, 1972, and February 22-23, 1973. The initial purpose of these in-service sessions was to evaluate and provide additional assistance to summer participants who were endeavoring to implement, on their respective campuses, some techniques imparted during the summer institute. The term *initially* is applied simply because, during the course of planning the October in-service session, we polled the participants, via survey, to determine what bottlenecks or obstacles they were encountering in their efforts to initiate new information management techniques. Responses to the survey indicated:

- More training was required in the area of developing stronger cooperation between components of the college and personnel within the components.
- More precise and operational definition of Institutional Research as it relates to information management was required.
- Additional techniques for evaluating management procedures were needed.
- More technical explanations were required for institutional representatives seeking to improve present information management procedures. We should add a footnote here since few institutions sent the same personnel to each session, it was necessary to repeat a considerable amount of the program. Given the survey response and this footnote, a different format for the October session was developed.

The October In-Service Session Format

The October in-service session included three general presentations and three special interest group sessions. The first general presentation was given on the topic, *Introduction to Management Systems*, by Jesse J. Mayes and Clarence L. Williams of Federal City College, Washington, D.C. This presentation dealt with the information management requisites in a considerable amount of detail for the areas of Academic, Financial Planning and Development in a higher educational setting. A combination of both Williams' and Mayes' reports has been included in this publication as an example of the detail this session included.

The second general session was keynoted by Eddie Morris, Dean of Admissions and Registration, Kentucky State University. Morris' topic was *Evolving Concepts of Recruitment, Admissions and Records: Priority for Survival.* This topic dealt substantially with the new recruiting techniques being employed at the Kentucky State University and how they might be useful to the other institutions participating in the TACTICS effort.

The final general presentation on the topic, *Systems Analyses At Black Colleges,* was given by Herman Branson, President of Lincoln University, Pennsylvania. Branson's remarks are available on video tape. To capture Branson's remarks in narrative form would do a great injustice to this particular presentation. In the words of one participant, "One must see it to appreciate it." Generally his topical demonstrations dealt with the statistical and mathematical representation of relevant institutional information and analysis.

The three Special Interest Group (SIG) sessions were designed and initiated according to the administrative responsibilities of the participants. Group A was designed for Data Processing and Institutional Research personnel; Group B for Admissions, Registration, Financial Aid and Recruiting Officers and Group C for Business Managers, Development and Federal Relations Officers. The discussion leader(s) for Group A was William Churchill, Howard University; Group B, Paul Simon, Xavier University and Jack White, Optimum Computer Systems, Inc. and Group C, William Henderson, Atlanta University and Andrew Goodrich, University of Maryland, College Park, Maryland. The rationale for compartmentalizing the participants in this

manner was to provide a compatible forum for the development of the discussion leaders' case materials and to deal with esoteric administrative problems. It was by design, therefore, that the general sessions welded the special interest group sessions into a more cursive form.

The report of Eddie Morris, the combined reports of Jesse Mayes and Clarence Williams, and Jack White's report on the presentation for Group B shall be utilized to illustrate the general activities of the October session. The other group reports will not be included due solely to our inability to condense their narrative to fit our printing budget without sacrificing their content.

The February In-Service Format

February's session incorporated a different format while supporting the identical philosophy of the previous summer institute and October in-service sessions. The simple philosophy being the improvement of management through various practical training techniques and the exposure of participants to proven information management techniques which are both within the financial and implementation ranges of the institutions involved in the TACTICS program.

Responding again to the polling of participants, an in-service session was designed to provide solutions to information management problems and to shed light on the ensuing conflicts which may occur during the operation or implementation of different management techniques in a higher education environment. Unlike the October session, February participants were free to select which Special Interest Group (SIG) they wanted to attend. But, similar to the previous sessions, the general sessions provided the pragmatic cement.

Provocative and substantive general discussions were keynoted by Richard Arrington, Alabama Center for Higher Education; Elias Blake, Jr., the Institute for Services to Education, Inc.; and Frederick E. Balderston, Center for Research in Management Science, University of California at Berkeley. Again the medium of video tape was employed to capture the plums of the discussion. However, Arrington's and Balderston's discussions have been capsulized and included in this report.

The SIG's were developed and sponsored by representatives from the Black Affairs Center, Inc. of New York; the Moton College Service Bureau, Washington, D.C.; the National Laboratory for Higher Education, Durham, N.C. and the Department of Research and Development, Ohio State University. The abstracts for each of these SIG's is enclosed along with the report narratives from the first three previously mentioned organizations. Ohio State's report is not included due to the comprehensive nature of its abstract. We felt the abstract sufficient to convey the general content of the session.

As an addendum to the February session a demonstration of the QUERY SYSTEM developed by MIS/TACTICS was provided. This system was developed for the TACTICS institutions to increase their record maintenance and manipulation capability. Documentation and a detailed technical explanation of this system is available from the Management Information Systems Directorate of the Institute for Services to Education, Inc. Instruction in the "care and feeding" of this system shall be provided during the 1973 Summer Training Institute held from June 11 through the 23rd at Tennessee A&I State University, Nashville, Tennessee.

James A. Welch

ACKNOWLEDGEMENTS

This particular section of a report affords the opportunity to the program developers to fix the blame for the success of the training sessions where it actually belongs. To the participants, who gave of their valuable time and expended some of their scarce financial resources to attend what we intended as a rewarding training experience, our sincerest thanks. To the discussion leaders, who gave of their talents, we both congratulate you and thank you. And finally to the MIS staff for their performance as usual, beyond the call of duty, which includes unpaid overtime, may we never take for granted your dedication. The following list of discussion leaders, consultants, and participants is provided so that the readers of this report may know who they are.

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Section I

MANAGEMENT SYSTEMS
October Session

INTRODUCTION TO MANAGEMENT SYSTEMS

by

Jesse J. Mayes and Clarence L. Williams
Federal City College

INTRODUCTION

This presentation will discuss developing a management information system for a small college. This information system consists of three broad areas under which several types of information can be managed: academic administration for admissions, testing and counseling, registration and recording, student services and alumni records; financial administration for student accounting and control; and planning and development.

ACADEMIC ADMINISTRATION

ADMISSIONS

In order to select qualified applicants, the admissions officer needs to be free of the tasks of calculating predictions, editing applications for information that may be missing, counting the number of applications received and the number accepted or rejected, counting in-state and out-of-state students and the many other statistics required from admissions. Data processing can assist the admissions officer in his many tasks and help in the analysis of data.

The receipt of applications, test scores, letters and transcripts initiates the many operations in the area of admissions. This information must be coded and prepared for entry into the data processing system to begin the development of the master student data. As the master data is developed, the data processing system can be especially beneficial by carrying out the clerical edit of the applicant's data for incomplete information and for available information necessary for evaluation. A by-product of such an edit is a missing information letter sent to the applicant, his high school, his references or any other source required to supply information which has not been received.

When information is entered into the computer system, it is scanned to determine if all information necessary for proper evaluation is present. Predictions can then be calculated based on high school rank, college test scores, high school grades and their trend, high school rating and other desired factors. Reports can be prepared to aid the admissions officer in his selection of applicants. Information about those applications requiring action is printed in prediction sequence for comparison of those with similar academic qualifications. With information on a summary list and reference to the applicant's folder, the admissions officer can evaluate the qualifications of the applicant. Labels prepared on the computer can be placed on the applicant's folders to facilitate quick file reference.

Testing and Counseling

Testing and counseling is becoming more significant by placing greater emphasis on assisting the new student in the selection of his major and placing him in courses appropriate to his abilities and previous education.

The master student data contains student information which the data processing system can use in preparing test date requests in the form of cards. These cards accompany instructions sent to the new student about the testing and counseling program. When returned by the

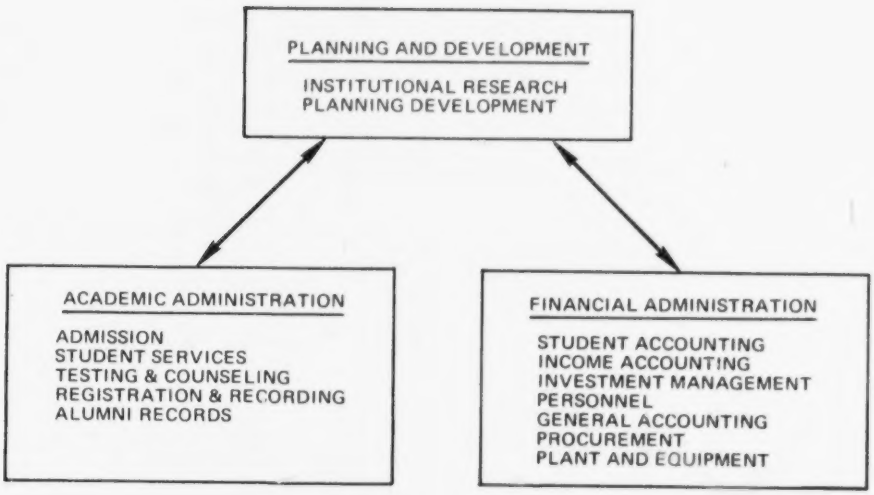

Figure I-1. Elements of an MIS

student, the cards are used to prepare the lists of students for the counselors, the lists for each test session and the list for each counseling session. Exceptions requiring other arrangements are printed on a special list. A date confirmation notice with the new student's schedule of test sessions and his counseling session may be printed by the computer and sent to him.

As the student continues through school he will probably have periodic reviews with his counselor. It may be desirable to have him complete an interest study and take more tests, the results of which would be processed by the data processing system. A new report would then be printed with comparisons to previous interests and test scores which are stored as part of the master student data. Available to the counselor from the master student data are the student's grades, grade analysis from registration recording, current and cumulative averages, major course requirements not yet completed and the extra curricular activities in which the student is participating.

Registration and Recording

Registration and recording deals with volumes of data in class scheduling, recording adds and drops, examination scheduling, gathering and recording grades, updating permanent records and degree auditing.

The preparation of schedules for the courses students have selected with their counselors may involve student selection of courses after the timetable has been established: it may involve computer-assigned sections using the previously established timetable and student course requests; or it may involve a computer-generated timetable with students scheduled into the sections as the time-table is developed, that is, complete scheduling of students, faculty, space and time according to the courses offered that term. Following the initial registration, student changes in courses and sections update class rosters and master student data and modified original class enrollment statistics are made. Once classes are settled, the remaining tasks are final examination scheduling and gathering and recording grades. With end of term grade-processing there is the deadline for checking grades of degree candidates for acceptability for graduation.

At the time courses are selected by both new and continuing students, a form such as the course request sheet is valuable since it could be processed by the computer with timely output. This output can provide statistics immediately to assist departments and the scheduling officer in preparing a course timetable or revising one already created. After the actual class scheduling is accomplished, the courses are recorded as part of the master student data, and schedules for students are printed.

A student identification card may be prepared for each student cleared for registration. The card is auto-

matically prepared from the master student data. This temporary student identification card punched with the student's number accompanies a permanent identification card. The permanent card issued to new and continuing students contains the student's photograph for positive identification. A new stub card prepared each term validates the permanent card for that term. Because the stub card is punched it provides a quick, accurate and automatic punched card entry, via remote terminals, to any part of the system requiring the student number. It may be used in student accounting for charges and credits, in library circulation control and in other applications where a transaction needs the student number for proper association with the master student data. The stub identification card is a part of the material the student receives during registration.

Class rosters are printed and ready for the instructor's first class. As course and section changes are made, they are recorded in the master student data and in the schedule data for printing of revised class rosters. Final class enrollment statistics are available showing distribution of students by instructors, departments and colleges.

The revised roster with a carbon copy serves as the midterm or end-of-term grade list on which the instructor indicates the grade for each student and returns the original copy to the registrar's office. This form, like the course request form, can be processed with an automated output for updating the master student data. The data processing system compares the output with the scheduling data and prints a list of roster/grade lists not yet returned by instructors and/or a list of missing individual grades by student, instructor and department. If midterm grades are recorded for all students, a second revised roster/grade list is printed for collection of end-of-term grades.

Midterm grade reports may be printed for all students, or only for those students with low individual grades or low grade point averages. If desired, midterm roster/grade lists could be prepared for underclassmen only and the revised roster held for reporting end-of-term grades. From the updated master student data at the end of term, grade reports and permanent records are printed, the permanent record being a complete record with all grades. This term's permanent record replaces the one prepared for the preceding term or grade labels can be produced to update the permanent record without replacement.

Grade lists for honors, probations and failures for all students by sex, class, instructor, department, etc., are routine byproducts printed by the system. Also available are grade point averages and admissions predictions for comparisons and studies conducted in the office of institutional research.

Another scheduling operation actually preceding end-of-term grade reporting is that of examination scheduling. With the class enrollment information, the available rooms and the available time periods known, the examination schedule can be established.

One of the most time-consuming tasks is the auditing of students' courses for satisfactory completion of all requirements prior to graduation. With a record of all courses taken and grades received in the master student data, and the parameters for requirements by major defined, a degree audit for unfilled requirements may be accomplished by the data processing system. Reports, by student, of remaining required courses are printed for the registrar, department heads, the testing and counseling department and the student.

STUDENT SERVICES

As stated previously, master student data, though only in one record, is available to many areas requiring access to this information. This is important to student service functions, especially housing and board assignment and financial aid. These groups need new-student information as soon as the applicant has accepted his offer of admission and paid his fee.

The arrangement of housing and board facilities is usually a time-consuming task that is difficult for new students. For new students, housing request cards are accompanied by housing and board instructions. The cards are marked and returned by the student in accordance with the housing policy and then used to update the master facilities data.

Continuing students can complete cards for their dining and housing requests for the coming school year with room and roommate selection available. The system updates the housing (facilities) data with room requests and edits to determine whether there are more requests for a room then there are bids. It also prints the following lists: occupants by room and dormitory, available

beds and rooms, students planning their own housing and students with no housing plan indicated.

After the students are assigned to rooms, their master student data is updated. The student is then sent a notification printed by the data processing system showing his assignment and the names and addresses of his roommates. Housing assignment lists are printed for the heads of dormitories. Room inventory check sheets may be printed for use when the students arrive on campus.

Dining facility requests can be handled with options, such as five-day, seven-day or monthly meal tickets. If some of the dining facilities are in the dormitories, the housing request card is modified to include dining requests as well. The student's master data is updated with his dining room and type of meal arrangement. Dining hall notices and the proper type of meal ticket are printed to accompany the housing notice sent to the student. Lists of students eligible to eat in the dining hall and their type of meal ticket are printed for dining halls. A punched identification card could be used with remote terminals to provide statistics on the number of students eating meals in order to assist meal planning.

Finances is one of the most rapidly growing student service functions. Students applying for scholarships and loans must complete questionnaires on their financial status in order for the school to determine their financial needs. The institution's own data processing system can be used to process the questionnaires and provide reports of financial need estimates. After distribution of scholarships and loans has been decided, the student's master data is updated and a notification printed for him. Lists of students receiving scholarships and loans are printed, and include name of scholarship and its amount as well as loan and amount of loan. Special reports can be printed when required for scholarships and loans such as those required by the federal government for National Defense Education Act loans.

The student directory can be prepared directly from the master student data. The data processing system can rapidly print the directory information in any desired format for photo reduction and reproduction.

The student services functions covered here are a sample; others can be included in a total system, such as placement.

ALUMNI RECORDS

After a student graduates or has attended the institution a minimum number of terms, he is considered an alumnus, and certain data from his master student data is entered into the master alumni data. Other information in the master alumni data is obtained from placement information, questionnaires, telephone calls, personal visits and memos on various alumni forms returned to the institution. The data processing system can assist in reducing time spent keeping track of the number of alumni and, at the same time, provide other data and reports.

Transferring information from the master student data to the master alumni data can be performed by the data processing system. However, questionnaires may be necessary to establish the complete alumni data for alumni who left before the system was installed. Once established, the master alumni data is available for the alumni office to do the following:

- Record and report statistics
- Disseminate many types of information to alumni
- Solicit, account for, and report alumni gifts

The tasks of keeping alumni records may be lessened by the system.

FINANCIAL ADMINISTRATION

STUDENT ACCOUNTING

The main objective of student accounting is properly assessing and accounting for charges and credits to students attending the institution. The four major student accounting operations covered here are student billing, students receivable, student loan accounting and scholarship accounting.

The basic input for student accounting comes from the academic administration area which provides information for tuition fees and other charges such as dormitory dining hall, health services, athletics, activities, insurance and parking. The student bill is prepared from accumulated charges and credits for the student and is sent to his home or campus address, depending on billing policy.

Additional charges, such as those for library, parking and breakage can be included in the billing procedure.

All charges and credits should be processed through a single account identified by the student number rather than multiple accounts and files for the many charges a student may incur. Because the student number is the basic control for the accounting operations, it is important that it be recorded accurately in a transaction in order to insure correct updating of each student's master data.

The actual bill preparation procedure involves processing information previously recorded in the master data and printing the student bill.

CONTROL

Concurrent with preparation of the bill is the preparation of an invoice register. This invoice register establishes an audit trail for all entries to the student accounts receivable and helps resolve discrepancies, should they occur. Also, the register provides totals for balancing to the control totals of the master data.

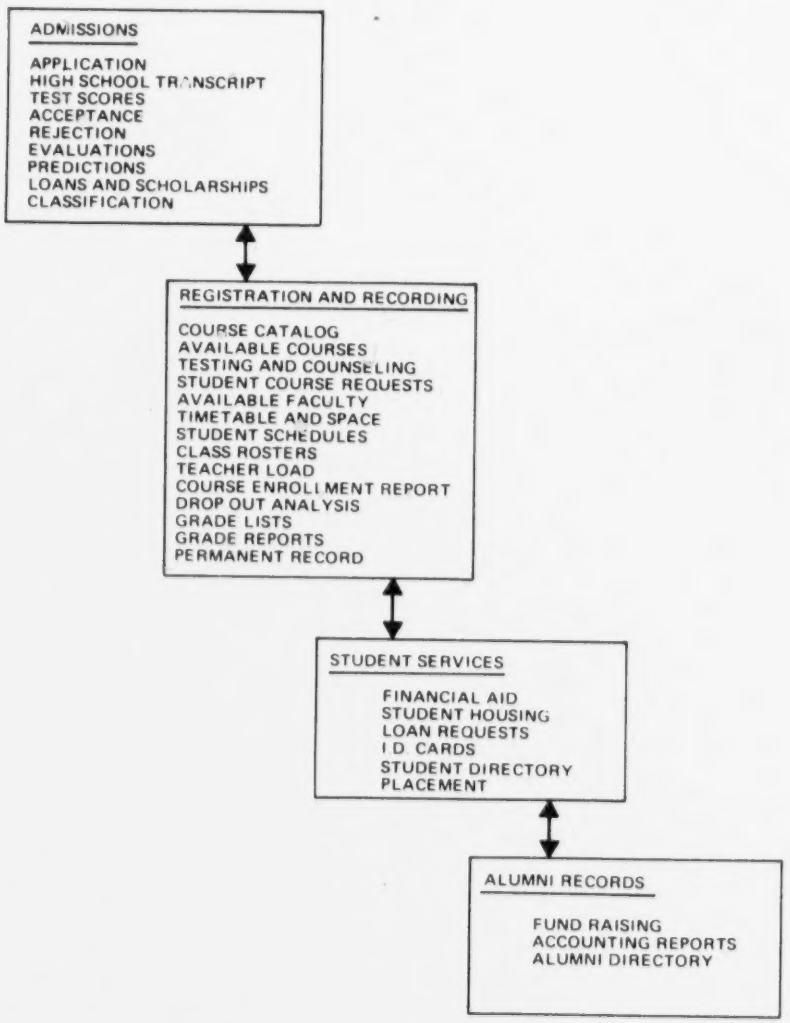

Figure I-2. Academic Administration

Under manual systems it may be desirable to have copies of the student bill or statement at the cashier's office for answering inquiries and for checking the balance due when the student comes to make a payment. However, as soon as the student makes a payment, the bill copy is outdated and needs to be replaced or hand-posted with the payment amount and new balance. Rather than replacing the copy each time a payment is made or hand correcting it, the computer could record the payment, calculate the new balance and report the status of each account. The status of a student account could be available at any time from a weekly status report and daily cumulative activity report or upon entering, via remote terminals, inquiry of the student master record. In processing all charges, credits and memos, the computer can calculate whether the student has overpaid or, if he still has an outstanding balance, it can show the complete status of his account on the reports.

As well as processing financial information, the system should be able to accept student data changes at the same time. Thus, when a copy of the bill is returned with the payment, in addition to recording the credits to the proper account, it should be able to process a new address. Once the new address is recorded in the master data, it is available for all concerned with the student's address.

PLANNING AND DEVELOPMENT

The three major functions of planning and development are institutional research, projection of future needs, and planning and developing programs to insure the funding for future operations.

INSTITUTIONAL RESEARCH

For some years, colleges have found it necessary to gather more and more information about grades and applicant test scores. The task often fell to the registrar or testing officer who summarized the detail in order to assist in determining the institution's standing, in evaluating courses and instructors and rating high schools. Previously, these reports were tabulated by hand. Now it can be processed by a data processing system. From statistics, formulae were developed which predicted applicant performance; sometimes these formulae were influential in setting admissions policy. At this point, when information from more than one source was brought together for study and analysis, the need for a central institutional research group was recognized.

This centralized group can help gather information needed for accreditation reports, to compile the growing number of reports needed by state, regional and national agencies and to summarize and project the figures required by legislatures and governing boards. Studies may be done not only with admissions and grade data, but in any area desirable, for example:

- Personnel and facilities utilization
- Operating and instructional costs
- Trends in courses taken
- Advanced placement course quality
- Complete class scheduling
- Maintenance efficiency and effectiveness
- Enrollment trends

Often information from these studies is needed by other offices such as business, personnel, plant and equipment or registrar's admissions. Therefore, it is especially desirable to be able to gather the data only once and store it in a manner which makes it available to all offices. A total information system can provide such information for multiple-data utilization.

Institutional research is characterized in some instances by taking information already available, sometimes gathering more from questionnaires and interviews, and then summarizing and analyzing the data systematically. Much of the work involved lends itself to utilization of a data processing system.

With student and faculty data available, the addition of physical plant information provides the source material for space studies. Meaningful reports can be prepared by using definitions and formulae found in published manuals on space utilization and data processing equipment.

Reports of faculty instructional costs and non-academic costs by departments can be obtained easily from the personnel data and employee work load data. If desired, material and maintenance costs that are charged to departments may also be included. Though not responsible for budget building directly, the institutional research office can supply cost information very useful to those who are preparing the budget.

PLANNING

The reports developed from institutional projections and analysis may be the basis for planning. Through the joint efforts of three functions—institutional research, planning, and development—the institutional evolution may be planned as far as five or ten years in advance.

All planning activities should be adopted to fit the objectives and policies of the institution with possible solutions to anticipated problems. For example, if enrollments must be limited, what type of students should the institution seek and admit? What is the priority of need for new buildings? Can the tuition remain at its present rate or, if it must be raised, by how much?

To make plans and projections successfully, it is necessary to maintain master data in all the other major applications with past as well as present information. The goal should be to have all operations sufficiently systematized so that master data are always up to date. Then when estimates are made for enrollment increases, required faculty, anticipated course offerings, plant and equipment needs, income and expenditures, it will be possible to look at all the master data and determine what effects will be produced and what changes must be made.

DEVELOPMENT

The responsibility for anticipating and promoting support for financing the institution's future program lies with the development office.

In developing support for the institution, data processing equipment can play a significant role by maintaining extensive data on alumni, non-alumni foundations, corporations and other groups. Such data would include:

- Basic description
- Current and past-giving record
- Interest in the school
- Gift potential
- Organizations
- Employer
- Employees
- Area of most frequent grants

With this type of information it is possible to prepare many reports and lists for development personnel, administrators, trustees and field workers to use in cultivating prospects for annual solicitation and, more important, for a major fund drive.

The ability of the system to maintain data on receipts of all kinds, that is, gifts, pledges, endowments, contracts, grants, bequests, etc., as well as information about donors, prospects and legislators, provides the development office with the needed information to solicit the greatest support from all the resources. The benefits this function derives from the availability of data from other functions emphasizes the importance of the master data concept in a total system.

SUMMARY

This presentation has discussed the following three topics:

- Areas of college administration which can benefit from an MIS
- Some administrative functions
- Detailed considerations of major administrative applications

Many factors exist which affirm the desirability and feasibility of an MIS. Mentioned in the introduction were the considerations of increased volumes from larger enrollments and expanded services offered, as well as greater complexities of most operations and more emphasis upon the growing need for automated systems for instruction and research.

The accountability circumstances provide a situation especially favorable for automated data processing in the small colleges. With respect to a MIS for the small college, other factors are significant. Specifically, in the area of academic administration, the same data normally prepared and processed many times by separate functions need to be prepared as input only once with an MIS manipulating it for various other functions. The master data concept can eliminate the need for many files and the difficulties inherent in file maintenance. It also makes all data about a particular type of item, such as personnel, available to all functions concerned with that category of data.

An MIS provides greater control over the flow of information in addition to facilitating interchange of data.

It directs general report preparation and dissemination and determines when exception reports are necessary and to whom they should be distributed.

The small college MIS discussed in this presentation is based upon the following principles:

- It is a concept and a goal. It is *not* a solution to all small college administrative problems.

- It can be used on a modular basis. The general concept is a guide for planning whatever portion of the system an institution intends to use first. However, an entire MIS must be considered in planning even though a building block program of implementation is used.

- It includes operations carried on by both people and machines. Each institution decides the role of the system. It should serve the institution by performing repetitive and clerical operations and freeing the administrator for more creative work.

- It is designed to serve all aspects of administration. An MIS should be planned and supported by top administrative officers.

As with many activities which provide great assistance and benefits, the preparation involved in establishing a management information system requires foresight, skill and hard work. The complete integration of all areas of the college demands consideration of all of them as a unit at the start. Therefore, an MIS requires more extensive planning than is necessary for an isolated application.

The three general systems design steps basic to the development of the interrelated sub-systems which make up an MIS are:

- Documentation of current procedures and information areas.

- Determination of information requirements at various decision levels.

- Designing an MIS to provide the desired information, with priority recognition, from data manipulated and controlled by the sub-systems.

The development and implementaton of a total system will require capable and qualified personnel and all-inclusive planning. However, the advantages derived from such a system far out-weigh the time and effort expended in its development.

SPECIAL INTEREST GROUP SESSION

MANAGEMENT INFORMATION REQUIREMENT

by
Jack W. White
Optimum Computer Systems, Inc.

Abstract

The Information Management Training Institute, in its 1972 summer session, unearthed the fact that many colleges and universities are plagued by seemingly insurmountable problems in the area of providing management information. The basic theory of developing management information systems for small colleges has been carefully developed and skillfully documented in papers such as 'Information Management Systems for the Small Colleges' by Jamess A. Welch, Director, Management Information Systems TACTICS. Further contributions have been made for specific cases, such as the College Accountability/Grading/Information System (CAGIS) that was developed specifically for Mary Holmes College, West Point, Miss. (Reference Report on the Information Management Training Institute, Summer 1972, pg. 9)

During the course of the summer session some of the major problem areas which have been detering the development and implementation of meaningful management information systems were found to be:

- *Lack of adequate processing facilities*
- *Lack of adequate staff*
- *Inability to devise plans that can be translated into workable and meaningful information systems and, consequently, into meaningful management reports.*

The purpose of this presentation is to emphasize the importance of cohesive planning and to stress the role of the Requirements Definition process as it relates to the evolution and development of a total management information system.

DEFINITION OF REQUIREMENTS

Although this presentation is devoted to small colleges, the principles of the requirements definition process are general in scope and broad in application. The essential ingredient in the transformation from theoretical planning to operational reality, of a Management Information System, is the definition of requirements. Too often work commences on a data system with inadequate requirements statements. The subject of requirements implies several structured levels of requirements definition. The end user of data products logically creates the most detailed requirements. Succeedingly higher levels of usage should combine requirements from their lower levels, insure compatibility between lower levels and develop summary requirements for their level. Figure I-3 displays the typical structural level concept found at most TACTICS colleges.

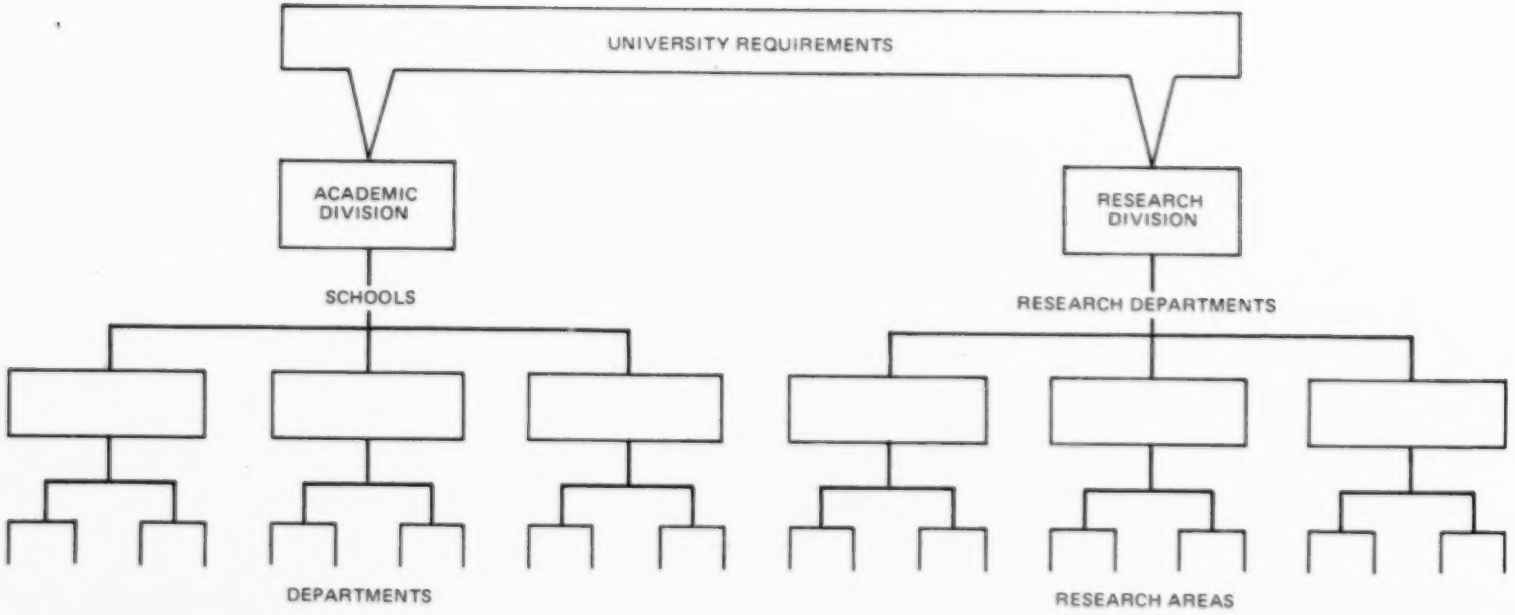

Figure I-3. Structural Level Concept of TACTICS Colleges

Two important conclusions can be drawn from the structure of Figure I-3:

- All management information requirements can be funneled upwards to major requirements definition points.
- The major requirement definition points provide the bases for individual subsystem modules.

The subsystem nomenclature is used to indicate the relationship of major portions of the system to the total Management Information System. Each system is vertically aligned, meaning that all elements of a complete Management Information System are incorporated. However, a subsystem satisfies localized requirements rather than overall university/college requirements. Figure I-4 displays a typical subsystem structural approach to a total Management Information System.

MODULAR APPROACH

The logical outgrowth of the Figure I-3 conclusions can be defined as the MODULAR APPROACH. The basic proposition of the Modular Approach is the independent development and operation of a particular subsystem with respect to all other subsystems in the total Management Information System. The importance of this proposition is twofold:

- Limited resources may be applied to a particular subsystem (module) in order to provide a completely operational component of the total Management Information System.
- Time and schedule priorities may be developed to allow complete operation of one or more subsystems (modules) without impacting the remaining subsystems.

The theoretical concepts which have been discussed thus far now need to be translated into a workable plan. It will be the intent of the workable plan to set forth common goals and objectives, to establish categorical areas for requirements consideration and to generalize useful design principles.

TRANSLATING THE CONCEPT INTO A WORKABLE PLAN

The initial step in defining the requirements of a Management Information System is the delineation of the objectives of the ultimate system.

The objectives of any Management Information System should include the following:

- Reduction of the manual/clerical processing and manipulation of data.
- Faster response to management requirements.
- Elimination of clerical errors in the collection of and use of information.
- Improvement in the ability to retrieve and utilize information.
- Maximize the utilizaton of computer hardware and software.
- Production of meaningful non-redundant reports of information.
- Improve communication between management and users/suppliers of information.
- Reduction in duplication of effort.
- Cost effective systems responsive to current and future requirements.

It may be noted that the preceding generalized objectives pertain to the creation of efficiencies in three general areas. First, efficiencies may be realized from the transfer of manual efforts to automated efforts. This has implications in error reduction, clerical processing time and the transfer of monotonous tasks to the automated equipment. Second, the requisite analysis that is required in the determination of the system structure will uncover and eliminate duplications of effort and redundant reporting. The third general area of impact is cost effectiveness.

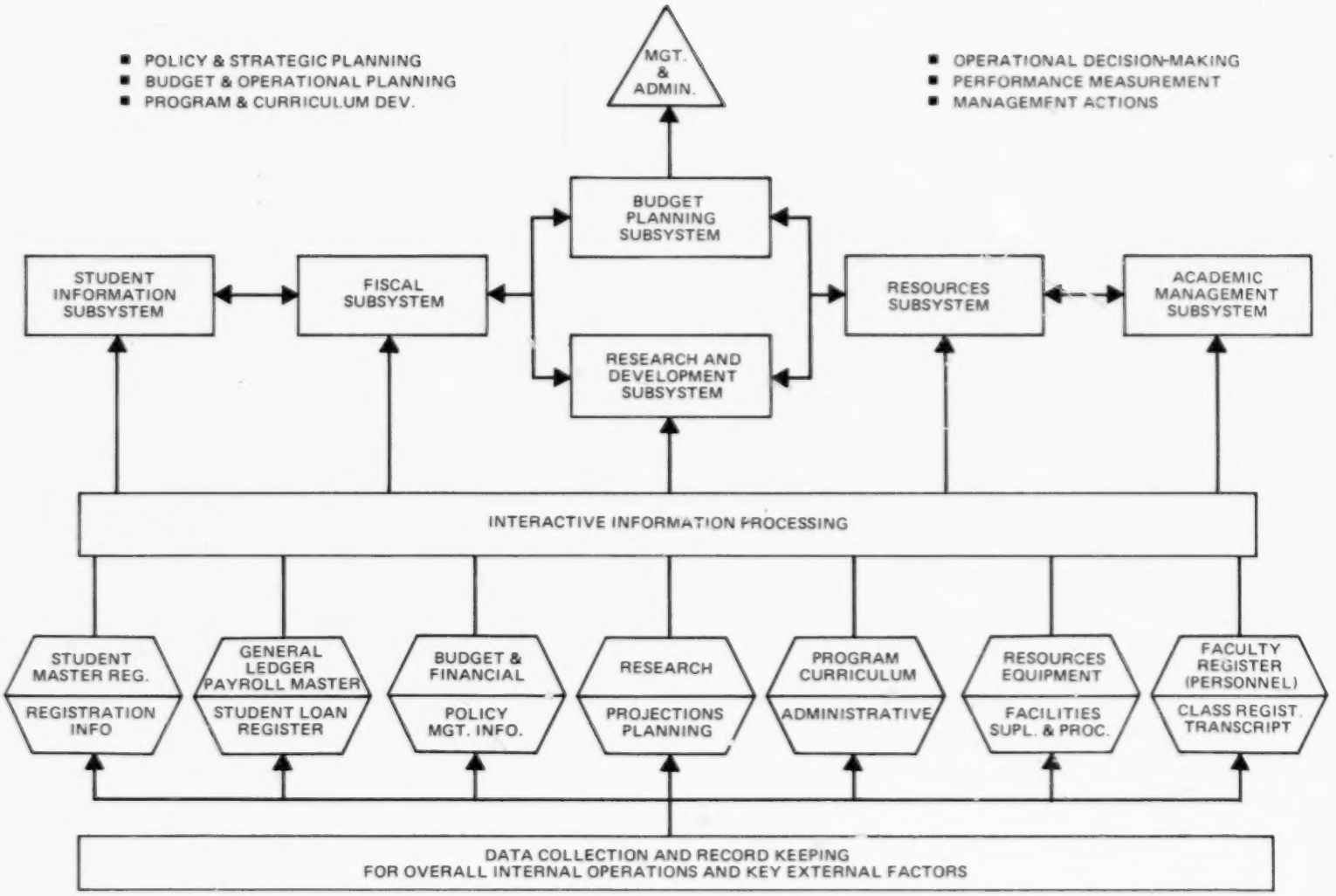

Figure I-4. Overview of Total Management Information System

The introduction of a computerized system will dramatically reduce the per unit cost of information thereby allowing college management to be more acutely aware of the impact of their decisions by virtue of the availability of pertinent data.

The goals and objectives for the total information system must be established as the initial phase of MIS planning. Once these have been established, the requirements may be defined. Requirements are defined in terms of three categorical areas:

- Files
- Input
- Output

Figure I-5 displays the traditional relationship between these three requirements areas for a hypothetical subsystem called Research and Development. The systematic analysis of the requirements in these areas will generate the structure of the files involved (meaning the data elements required) and forms that will be generated as output from the data incorporated in the file structure.

PROCESSING SYSTEMS

The vehicle for providing the transformation between the files, input and output is the processing system. In Figure I-5 the processing system is divided into three modules, forming second order subsystems. Three general principles are useful when considering the design of these processing systems.

- There should be a workable manual prototype system before it is practical to automate. It is in this area that the initial systems must begin. All forms, data collection and flow must be documented and methods of eliminating bottlenecks and improving the collection and flow of data devised.
- The input and output reporting requirements, both internal and external, must be determined and documented. This step includes the collection of volumes, timing (frequency of reports), distribution and formats.
- An analysis of the above must be performed with the idea of devising improved systems with use of automated concepts to reduce clerical efforts, improve reporting times and provide meaningful reports required by college management and administrators.

The development of the specifications for the processing system is the final step in preparing a plan for the implementation of a Management Information System. The specifications will lead to the actual development of the computerized system.

The preceding discussion has, in an overview fashion, demonstrated one approach to developing requirements for a Management Information System. When these procedures are followed for the total system, a subsystem structure can be defined and implementation can be initiated in a modular fashion.

The concluding section attempts to delineate why this methodology is of value to college management and administrators.

BENEFITS DERIVED

The preceding two sections have demonstrated the concepts involved in considering a Management Information System and the requisites for translating those concepts into a workable plan. However, the management of the college should have some criteria by which to make determinations with respect to system trade-offs. In general, the college administrators should seek to maximize the amount of data received with respect to dollars expended, thus assisting college management in the effective execution of their respective responsibilities.

Perhaps the greatest single advantage of this concept is that it allows some overall planning and goal setting to transpire without regard to the physical limitations of such factors as equipment, facilities, staff and funding. Once the basic planning has been prepared, college administrators can follow the plan in parallel courses that are designed to:

- Implement some areas of the system on present equipment.
- Plan future equipment acquisitions on the basis of present plans.
- Utilize the plan as a trade-off chart, in order to expend existing dollars in a manner that will provide the most desirable data products with respect to current processing capabilities.

This will allow college administrators to gradually implement a total system in progressive, modular phases. By implication, the benefits enumerated above will allow

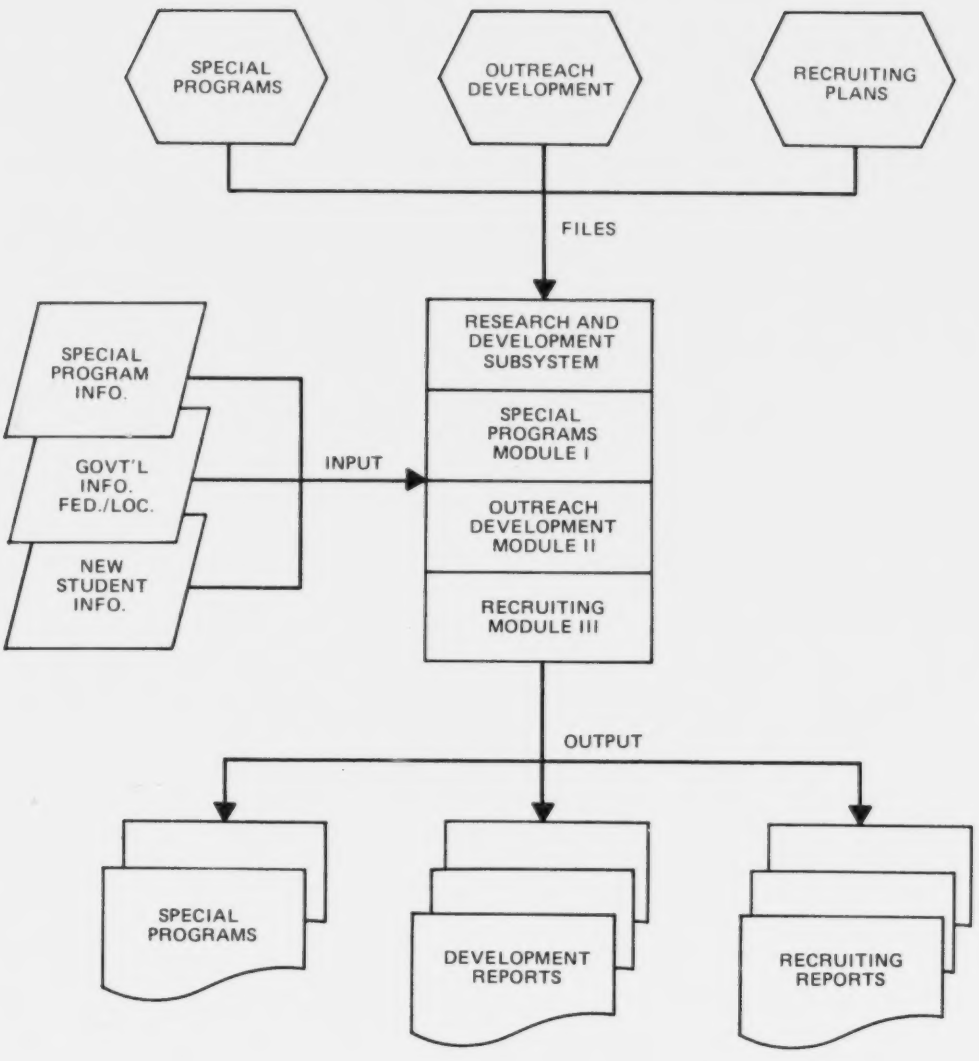

Figure I-5. Research and Development Subsystem

some aspects of the total system to become active and productive. Therefore, utilization is attained from the system on a limited, but regulated, basis, contingent upon equipment, staff and funding factors, while all intermediate efforts are in harmony with the objectives of the ultimate Management Information System.

Section II

RECRUITMENT, ADMISSIONS & RECORDS

October Session

EVOLVING CONCEPTS OF RECRUITMENT, ADMISSIONS AND RECORDS: PRIORITIES FOR SURVIVAL

by
Eddie W. Morris
Kentucky State University

INTRODUCTION

I am pleased to have the opportunity to speak at this in-service training session. It is always my pleasure to discuss subjects I believe in, and there are few things I believe in as much as I believe in Black colleges. Consequently, it is a real and genuine delight to discuss some parameters of recruitment, admissions and records.

It is important that we are aware that different perspectives yield different interpretations to a set of conditions of facts. Just as situations and conditions can be interpreted differently, words can be interpreted in several ways. However, I see no way that anyone familiar with the facts could argue this is not the time for those concerned about and with Black colleges to seriously consider priorities for survival as the order of the day.

Higher education in general has had to take a hard look at itself in the 1960s. The '70s are seeing implementation of the reorderings of the '60s. Yes, Black colleges are also caught up in this general awakening, but Black colleges must move farther, faster and in different, bold, new directions if they are to escape impending doom. This finds us today, then, calling this presentation, "Evolving Concepts of Recruitment, Admissions and Records: Priorities for Survival."

PERIOD OF TRIAL NOT OVER

This is a time when Black colleges are caught up in a vortex of fiscal austerity, educational accountability and integration backlash. The period of trial is not over—the continued existence of autonomous Black colleges is threatened. For example, a member of the Board of Regents of Fort Valley State College recently accused Fort Valley of being a diploma mill and recommended seriously considering discontinuing the school. At this time, no decisions have been made.

Some Black colleges have been absorbed by white institutions. Arkansas AM&N, once an autonomous Black institution, is now part of the University of Arkansas. White administrators at the University of Arkansas now have major decision-making authority for Arkansas AM&N. A similar situation exists in Maryland: Maryland State, a Black institution, is now a part of the white University of Maryland, although there is a Black chancellor at Maryland State.

It is becoming increasingly clear Black colleges must identify certain basic drums for survival and then beat them like hell. It's not important to identify *the most important* drum—which is more important in the hot dog, the weiner or the roll?—, but it is clear to me one vital factor in the survival of Black colleges is the recruitment, admission and enrollment of students.

RECRUITMENT, ADMISSION AND ENROLLMENT FOR THE BLACK COLLEGE

Recruitment, admission and enrollment is particularly important to Black colleges. Teaching, research and service are generally considered the three primary functions of higher education; but, since most Black colleges are generally undergraduate institutions, the emphasis of these

schools is teaching. Therefore, it is essential that Black colleges have an effective recruitment, admission and enrollment program to carry out this teaching function.

We must make a greater effort to recruit our better Black students. In 1971, only 45 percent of the 500,000 Black students attended Black colleges while 99 percent of the 7 million white students attended white colleges. This trend must be reversed. It is time to look at the kinds of students we are recruiting and admitting; I'm not sure it is in the better student's best interest to succumb to the carrot offered by the white institution. I'm concerned about the next generation of leaders in our communities, our churches and colleges. We'll need some leaders with the "Black Experience," with that special, indescribable seasoning that four years at Bennett, or Morehouse, or Tennessee State puts on, which never wears off. I'm afraid that unless it's watched very carefully, institutions will develop programs to fit the students, rather than vice versa.

The future of our Black colleges is being threatened by a number of factors. For one, the ever-spiraling cost of education is causing many high school graduates to consider other forms of post-secondary training. Vocational school, apprenticeships, MDYA participation. Armed Forces training programs and so on are enrolling many high school graduates. Thus the pool of potential students for Black colleges is getting smaller.

Also, white colleges are vigorously recruiting Black students to improve the institution's image and to meet racial guidelines for federal funds; Black admissions counselors are being hired expressly for this purpose. They have many more inducements to entice the more academically able student. Community colleges and junior colleges are enrolling more and more students as well.

Our institutions have been damaged by recent propaganda and innuendoes perpetrated by self-styled "instant experts" on Black colleges who have depicted Negro colleges as weak, fumbling, inept, ill-run institutions. We need some writers from within Black colleges who have the ability to put down clear, rational ideas to come forth and tell the story of the success of the Black college against overwhelming odds.

Desire for prestige is another factor with which we must deal. A more affluent Black middle-class, which has developed in the past fifteen years, now has the means to send its sons and daughters to Yale and Radcliffe, Texas Southern and Spelman. As Benjamin E. Mayes said, "It's like the Rolls Royce and Cheverolet—No better car, but a helluva lot more prestige."

RECRUITING FOR REAL

Plan Your Work, Then Work Your Plan

Black college recruitment programs therefore must be effective—it's a matter of survival. To recruit effectively, it is necessary to have a systems approach or develop a master plan.

There are two ways of looking at recruitment programs:

- As the responsibility of a small, select group
- As a college-wide responsibility

The approach used will determine the organizational structure. I submit that recruitment should be a college-wide responsibility; we, at Kentucky State University, have organized in a manner to promote this college-wide consciousness and commitment.

Our Recruitment Committee is responsible for helping plan operations and making recruitment trips. No one is employed just to recruit, although several persons have recruiting as a part of their official duties. These persons are:

- Dean of Admissions and Registrar
- Assistant Registrar
- Director of Alumni Affairs
- Director of Placement
- Director of Upward Bound and Educational Development Counselor
- Dean of Development and Evening Division

A good procedure is to hold a couple of training and orientation workshops for everyone who will be making recruitment trips. Topics that should be covered are:

- Recruitment aims
- The target area
- Materials to be taken on the trip
- How the "hard sell" is to be performed
- How to use student recruiters
- The procedure for getting advance funds
- How to fill out recruitment reports and file travel vouchers

Another good procedure is the development of a recruitment manual.

SETTING THE SIGHTS

It is important to set recruitment goals after considering these factors:

- Long term enrollment projection of the institution is vital.
- Constraints existing—out-of-state limits, dormitory space, number that can be accommodated by various departments, new programs developing, etc.
- Number and percentages desired for various majors, from various areas, and number of disadvantaged.
- Percentage of recruitees that submit applications by classification and percentage of applicants that enroll by classification.

Taking these factors into account, quotas can be set and a target recruitment figure established. It is then possible to determine the number of high school seniors that must be contacted. By knowing the percentage of contacts that make application and the percentage of applicants accepted that enroll, very *real* target figures can be set.

FACTORS IN ADMISSIONS

Recruiting is only a small part of the job. Application procedures must also be examined and simplified. Consider eliminating the following from your application procedure:

- Personal references
- Unnecessary test scores
- High school transcripts (if open admission)
- Application fee
- Medical examination

I challenge anyone to defend the necessity of these documents as *admissions* criteria.

Going one step further, admissions criteria should be revised to permit all qualified persons to enroll whether or not they graduated from high school. Potential qualified students may be determined by criteria such as GED and experience plus standardized test scores.

Freshman orientation programs should also be revised. The large number of tests often given freshman students during orientation can be eliminated; adequate judgments can be made on the basis of what we already have—standardized test scores and academic records.

CLOSE THE REVOLVING DOOR

An adequate counseling staff is essential to direct new students into appropriate academic programs. Too often students end up in the wrong department and, consequently, perform unsatisfactorily. Also, counseling services are needed to help students cope with social and emotional problems. Let's close the revolving door through which too many students pass without getting the education they want and need.

Section III

INFORMATION MANAGEMENT TECHNIQUES

February Session

DEVELOPING AND IMPROVING EFFICIENCY IN HIGHER EDUCATION: PROCEDURES AND MEASURES

by
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University of California, Berkeley

INTRODUCTION

Shortly after someone I know took office as Vice President for Business of a well-known and complicated private university, he commented that it had taken him a month to find out where the money was. I thought at first that he'd had trouble finding out *where the money was going*–which, as we know, is not such an easy question–but he said, "Oh, no, I had my trouble just locating the scattered bank accounts and financial records!"

BUDGETING AND COST ACCOUNTING

Traditionally, the first task of trusteeship and business management in an educational institution is to see to the stewardship of its funds and other assets. We can be reasonably sure that this job is properly done in practically all institutions today, and that the financial accounts are laid out and maintained according to the accepted standards of institutional accounting.

The second and more interesting question–finding where the money is going–is part of the tasks of budgeting and cost accounting; and here we find that our knowledge is much less complete. Our budgets used to be drawn up simply in "object classes" or "line items". This was good for control and also for keeping the budgeting system and the financial accounts tied together. But then came the need to develop budget allocations for *institutional functions* and to arrive at sensible *budgeting standards* for them, and this meant rearranging and regrouping the object-class budgets to disclose information and make clear-cut commitments of an institution's resources for the functions that have to be performed.

When measures of workload–student course enrollments, or library checkouts or other appropriate measures–can be related to the functional budget, we also have a way to adjust budgets as the amount of activity changes through time.

So far so good. But in the present context there are several major problems that institutions face for which more than the standard accounting and activity information are needed. As I mention these, we should keep in mind an issue that I'll come back to–we have to be interested *both* in *educational effectiveness* and *dollar-efficiency*.

The problem areas are:

- Taking care of the *on-going academic and business transactions* of the institution requires large amounts of information–not only accounting and registrar's records, but numerous other kinds of data for decision-makers at all levels.

- *Describing these operations* of the institution and tracing their costs in enough detail so that reasonable judgments and comparisons through time can be made by the chief executive, deans, business manager, department chairmen, residence hall managers and other administrators in the many specialized areas of work.

- *Analyzing* academic and administrative activities; *estimating* the workloads and the sources and uses of dollars and manpower and *examining alternative ways of doing the job* so as to *improve resource usage*.

- *Sorting out priorities* and *forecasting future enrollments, categories of income and costs of operation, in order to develop effective plans.*

- *Justifying* the institution's mission and program from the standpoint of its students, faculty and administration but also to those external bodies – donors, State and Federal budgetary and funding agencies, and accrediting organizations – that have a powerful, if not entirely welcome, influence on an institution's life and prospects.

These five areas of information requirements are just a simple summary. You could quickly add to each category a number of comments, in much more detail than I can, about what is needed and where you presently stand in providing the needed information in your own college or university. The point is, though, these are five areas of decision-making attention that help us to determine: Information for *what purpose*, in *what degree of detail*, in *whose hands* (or head!) and, to some extent, at what worthwhile cost for gathering, recording and processing the information.

INFORMATION SYSTEMS

We are said to be living through an information revolution. Certainly it is true, as has been found in many types and sizes of business corporations and government agencies, that computer-based systems for accounting, payroll, inventory records and workload activities are essential for day-to-day operations whenever the volume of standardizable information is high. But business and governmental organizations are also populated by people, and our colleges and universities are *very human* organizations indeed. So it is important to put into place those kinds of accounting, student records and other day-to-day systems which will be designed and explained so that they will be gladly and effectively used.

This kind of effort can be divided into a number of *sub-systems;* the list of these is fairly large in those institutions that have been able to make a systems development investment. Unfortunately, there are a couple of real hazards in putting such new and "better" systems together.

The systems can easily become large, rigid and a curse instead of a blessing to the people in the institution, especially if there isn't sufficient attention to the "fitting" of these systems to the human capacities of those who will have to operate them. Also, these systems can be very *costly* – in design effort, in hardware and software, in training costs and in annual operating burdens – so costly, in fact, that they can easily cost more than they deliver in convenience and effectiveness.

Many institutions are now finding that they have to spend most of their information efforts for areas concerning academic and business transactions and justification of the institution's mission that I mentioned–information for *day-to-day operations* and information in various required report forms to HEGIS, to State governments, to HEW and otherwise to the outside world. These outside agencies often design their required reports to fit into some broader scheme of things, and the effort required–not paid for, by the way, by the agencies!–often has little pay-off in improved operating or policy information for the purposes of the reporting institution itself. And where does this leave us as to information for the other main purposes: operating management *judgments;* analysis of *alternative* ways to do things and for *setting priorities, forecasts and plans?* Unfortunately, all too often, nowhere! It is almost as if we were forced to follow a truly irrational rule: The more important the problem *is*, the less information we have available to deal with it! Surely, if we are to talk about efficiency, we should do all that we can to assemble the information needed for good managerial judgments, for analysis of choices and options and for planning.

But if we are truly to confront the issue of *efficiency* in the academic enterprise, we run into another and very interesting problem. Engineers define the efficiency of a machine as the ratio:

$$\frac{\text{output}}{\text{input}}$$

We spend a great deal of our time keeping track and allocating the resource *inputs* (dollars, people, equipment, supplies) of our institutions. But our ability to define, measure and evaluate our output–either as to quantity or quality–is very limited! As teachers we know that each individual student who succeeds in getting a "good education"–and a high level of achievement in that educational program–really means the student is achieving some mixture of gains–in maturity, background knowledge, moral involvement and certified skills. In vital respects, the particular mixture of the gains achieved is unique to each individual student, and it is not adequately described by credits earned or number of degrees attained.

As institutional administrators we are very much aware that the vitality and effectiveness of an institution—its success in carrying out its mission—needs to be evaluated in a great number of dimensions. Our philosophy, as educators, is that the work of an institution ought to be measured by what it adds to the lives of the people it touches and by the functions it serves in adding to the store of human knowledge and insight.

As we move ahead with information systems, one of the greatest hazards we face is in adopting schemes of accounting and information handling that do not do justice to the tough question—*What are we seeking to accomplish?*

I should mention that, although many management systems are home-grown in the institution, it is also possible to get help from general purpose designs. Many are becoming available now from both the commercial and non-profit sectors of the education community. Also—there is a growing literature of analysis for greater academic and business effectiveness in higher education. Several Carnegie Commission publications are especially helpful:

The More Effective Use of Resources, a Carnegie-Commission report; Howard Bowen and Gordon Douglass, *Efficiency in Liberal Education,* a Carnegie Commission monograph, published by McGraw-Hill, 1971;

Earl Cheit, *The New Depression in Higher Education,* a Carnegie Commission monograph published in 1971.

The American Council on Education has published numerous helpful studies. In the ACE volume, *Universal Higher Education,* there are two essays on finances and efficiency:

Virginia Smith, "More for Less: Higher Education's New Priority"

F. E. Balderston, "Varieties of Financial Crisis"

Finally, I should mention, from the growing technical literature in this field, two reports from the series published by our Ford Foundation Program for Research in University Administration at the University of California:

F. E. Balderston and George B. Weathersby, "PPBS in Higher Education"

F. E. Balderston, "Cost Analysis in Higher Education"

CONCLUSION

Institutions of all kinds are facing very heavy strain on their fiscal resources in relation to what they are trying to accomplish, and the situation may well become tougher rather than easier over the next few years. This makes our need for information, analysis and courageous decision-making all the more urgent, even as it also means that the money for management improvement comes very hard.

I am pleased to participate in this meeting, and in the course of the discussions today I hope to learn from what you are doing as you cope with these important problems in your own institutions.

SPECIAL INTEREST GROUP SESSION

GENERALIZED DATA MANAGEMENT SYSTEMS IN THE SMALL COLLEGE COMPUTER CENTER

by
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Abstract

The basis for any administrative information system is an efficient method of retrieving data and generating reports. Among today's colleges and universities, a common problem is the need for current, accurate information concerning all aspects of the institution's environment. Unfortunately, economic pressures and academic experiments with curricula, calendar and teaching techniques have caused many institutions to constantly shift priorities for the collection and analysis of data.

In the past, particular data management systems were designed, data were collected and computer programs were written for each particular mechanized application. Deviations from the original purposes of the application could often result in rewriting of programs and, in some cases, additional collection of data. Producing new reports from an existing data base, or making "trivial" modifications to existing reports could often place an intolerable burden on the small college computer center.

The solution to these problems is the Generalized Data Management System (GDMS). The National Laboratory for Higher Education (NLHE) has designed, implemented and tested a GDMS for users of small computers and terminals to larger computers. This GDMS is designed to allow even non-computer oriented people to generate ad hoc reports from a omputer data base. These reports can be printed in any sorted order, can consist of any selected subset(s) of the data base and can contain any set of data items from each record. Also included in the system are various statistical reports and easy-to-use data base updating programs.

This special interest group session will introduce the concepts of generalized data base management to the small college computer user. Also various desiderata of good GDMS's will be discussed.

INTRODUCTION

The purpose of this paper is two-fold: to discuss the problems encountered by the small or medium size college computer centers, and secondly, to discuss the possible solution to these problems by using the case study technique of examining a particular generalized data management system. Quite often in today's small to medium size computer centers there are many problems encountered by computer center personnel. The primary source of these problems is the fact that presidents and administrative officers need data to make management-type decisions.

INTERNAL AND EXTERNAL DATA

There are two types of data which are needed by presidents and administrative officers. Internal data are necessary in order for presidents to make decisions which affect the internal operations of their colleges on their campuses. External data are data which are about the college and campus and are needed in order to make reports to

external organizations on the national and state levels to secure more or better funding for their particular campus.

But why are all these reports necessary? First of all, there is a required accountability that all presidents and administrative officers must have to external and internal organizations as far as the campus is concerned. Secondly, these reports are necessary because each president desires to achieve the most efficient internal operation possible. The reason he wishes to do this is to minimize his operating costs as much as possible.

APPLICATION-ORIENTED PROGRAMMING

These reports that the presidents and other administrative officers need imply that computerized data bases might be a good solution for being able to gather, collect and accurately report the information necessary. But now the problem arises at a small or medium size college which most larger universities do not have. Large universities have computer centers which are fully staffed and which give them the reports they need. Large universities have a lot more money than medium or small size colleges. Therefore they can afford to implement these computerized data bases and also program and computerize the report generation they need to have. This isn't the case with small colleges or medium size colleges and universities. By small or medium colleges I mean less than 5,000 students. The fact that these schools are small means that they will also have small computer hardware if they have any at all. Also, it means that they will have small data processing shops. They may have a computer director, an assistant director, an operator, and maybe two or three programmers.

All of this means "double trouble" for the computer center in a small or medium size college. First, small computers imply in most cases slower computers, which itself implies that time is very important in the small college computer center. It is really a problem to decide how the computer should be utilized to its maximum efficiency. The second problem, that of the small staff, probably results in too much work for the programming staff in the computer center to be able to handle all of the work quickly and efficiently. Therefore relative priorities have to be set within the computer center as far as programming is concerned and there will be some projects which will be delayed in order that other projects can be computerized. All of this means that, by the time that a particular project may be computerized in the small or medium college computer center, the application very likely will be out of date. All of the work that the systems analyst has done preparing the computerized application may have to be done over again. This is of course more waste of manpower.

The total effect that comes out of this "double trouble" problem in the computer center results in what has been called the "tar pit" effect. One might have seen pictures of primeval beasts stuck in the tar pits, struggling to get away from their impending death. The problem that these animals encounter is that they can lift any one of their legs and, therefore, extract it from the tar. In order to lift the other leg they will have to place the first leg down again. So it appears to the animal that it will be easy to get out of the tar pit; however, when he actually tries to do this he's stuck. This is the same type of effect that you find in a small college computer center. It is easy to identify the tasks which need to be accomplished and it is easy to accomplish any one task. But the accomplishment of all the tasks which are facing the computer center is a formidable project indeed.

DATA MANAGEMENT SYSTEM

One possible solution to all these problems in the small college computer center would be to have a generalized data management system. By a generalized data management system, we mean a system of computer programs which has been written once and implemented once, but can be easily used over and over again in various applications. These applications may have nothing to do with one another, but the programming and systems analysis work is done only once. The program is generalized enough to handle any arbitrary data base.

How is this possible? Generalized data management systems are possible because of the duplicity of common data processing requests. It may be surprising to a person in the business office that his data processing request may be very similar indeed to the request that comes from the registrar. It turns out, however, that these requests are all very similar. The type of requests that come into a college computer center may consist of a request to set up a data base, to print out reports from the data base and to be able to update the data base in order to keep it current. The type of printed reports which are requested consist primarily of selecting a subset of the data base and printing out various data items from the data base records in different orders.

APPLICATION-ORIENTED PROGRAMMING VS. MANAGEMENT SYSTEMS

The key to understanding the value of a generalized data management system is knowing the difference between application-oriented programming and generalized programming. Application-oriented programming was the predecessor of these two and more familiar on the small college campus. It consists of the analysis of a particular problem followed by the programming of that particular problem on the computer. The disadvantage of application-oriented programming is that applications change. Systems analysis done by the analyst a year ago and the implementation on the computer of a particular application like registration, student records, etc. may change over a period of time. This implies that if you have done application-oriented programming you need to go back, redo the systems analysis and possibly reprogram the application on the computer.

Of course this means that you have wasted manpower and wasted money—the big problems in the first place. What you would like in generalized programming is to write programs which are general enough to be able to handle several applications and defer the binding of a particular application to this system to a later day. So if you would program a generalized data management system, you would develop it so the particular application (like student records, registration, student information, library acquisitions or space utilization) could be associated with this generalized system when the people at the college decide to implement their particular computerized application.

The concept of generalized data management systems is not really that new; it is at least five or six years old. And in the history of the computer world, that's relatively old. But for small computers the concept of the small generalized data management system is new. Only within the last few years have generalized data management systems been realized on small or medium size computers. The reason for this is in order to write programs which are generalized you must use a lot more machine memory and resources. You *do* pay a price for a generalized data management system, but you never get anything for free anyway!

The price you pay is you have to write into your programs the generalized capability of accepting any particular application. So it would be possible to write smaller and quicker programs tailor-customed to that particular application. Therefore a good policy to follow is to implement your computerized application on the computer originally with a generalized data management system. Use this generalized data management system as a tool to help you decide which reports you want and how frequently you want them. Once you finally "converge" to the final type of reports required, then devote the time to application-oriented programming which will make the system run faster and cheaper on your particular computer.

NLHE INFORMATION RETRIEVAL SYSTEM

In order for the reader of this paper to better understand how generalized data management systems work, a particular data management system will be discussed, the NLHE Information Retrieval System. The NLHE system is designed for small computers; therefore, it is applicable to a wider user audience. The relative simplicity of the NLHE system compared to other generalized data management systems makes it very useful as far as the small or medium size college computer center is concerned. Retrieving a report from a data base which has been set up with the NLHE system consists only of entering 3 or 4 cards into the computer telling it what type of report you want.

RETRIEVAL SYSTEM HISTORY

First, let's look at the history of the NLHE Retrieval System. The system was originally proposed in January of 1970 by RELCV, The Regional Educational Laboratory for the Carolinas and Virginia. Since then, RELCV has been renamed NLHE (the National Laboratory for Higher Education). The NLHE System is not the first known retrieval system for small computers. A prior system, the St. Joseph's College Information System, was developed for the IBM 1130 computer by William G. Verbrugge, E. John Kriegel and Kenneth Zawodny. Other routines to do fast sorting on the IBM 1130 were written by B. J. Swain. The NLHE System was coordinated by Mike Abbott, who was in charge of Information Systems at NLHE at that time. The actual programming and testing of the system was performed by E. James Runde, then of Clarke College, Dubuque, Iowa, now at Furman University, Greenville, S.C., and T. Ray Nanney, also of Furman University. They were assisted by Catherine Watts Frank and several other programmers.

The programming language used for the NLHE Retrieval System was Fortran IV for the IBM 1130 with the Commercial Subroutines Package for that computer. The system assumes a minimum computer configuration of an

IBM 1130 computer with 8K memory, 1442 read-punch, 1132 printer and at least one disk drive. Since initial implementation of the NLHE system on the IBM 1130, NLHE has undertaken a conversion of this system to run on larger computers such as the IBM S/360 and S/370. This conversion made the system available to the small and medium size college computer centers which only have a terminal to a much larger computer. Therefore, an institution possessing only a teleprocessing terminal to a larger computer also has access to the NLHE system.

NLHE APPLICATIONS

There are several known applications with the NLHE Information System. The following list demonstrates a few of these applications:

- Admissions
- Alumni
- Applications for Financial Aid
- Course Reservation
- Development Office Data
- Faculty Data File
- Financial Aid
- Grade Reporting
- Institutional Research
- Inventory Control
- Inventory Reporting
- Library Acquisitions
- Personnel Guidance
- Pre-registration
- Registration
- Serials
- Space Utilization
- Student Information System
- Union Catalog of Library Holdings

The NLHE system has other applications which are not directly related to the college campus. For example, NLHE has sold this system to a computerized dating operation in New York City, to the Department of Agriculture for keeping records on trees and tree growth, to CBS Television Network and last, but not least, to the CIA! The CIA's use of the system is undeterminable at the present.

FILE MAINTENANCE AND INFORMATION RETRIEVAL

The NLHE System consists of two main groups of programs: file maintenance and information retrieval. File maintenance gives the user the capability of describing his file (telling the system what type of data items will be in the file), loading the file with the data once it has been obtained and keypunched into computer-readable form, updating the file and maintaining the file on a standard operating basis. Information retrieval allows the user to sort the file, select a subset of it, print out this subset, generate statistical reports and tabulate information. Again we should mention the fact that one of the outstanding values of this system is it has a very simple set of instructions which you give the computer to generate a particular report. The following list should give you an idea of the type of instruction that you can give the computer:

- Date
- Sort
- Selection
- Print
- Format
- Reprint
- Exit
- Frequency
- Tabulation

- Correlation
- End
- Titles

CASE STUDIES OF THE NLHE SYSTEM

Now let's look at some particular applications which have been realized with the NLHE system. First, we look at a sample file of a data base which has been set up at Furman University for admissions. Figure III-1 is the key to a generalized data management system. The programs which have been written to generate the various reports look at this file description, which is kept on computer disk, to see what particular application is being realized by the system at this time. By looking at this file description table the generalized programs can tell where certain fields of the records begin, how long they are and special editing features which should be applied to these fields when they are printed out. As we can see on the Furman admissions file description table, there are several fields which are very important for making decisions as far as admissions is concerned. As a side comment, it should be pointed out that Furman, like all other schools, likes to make certain that their applicants understand that admissions are made by people and not by computers. The data you get out of this admissions systems is to help people make better personal decisions about admissions.

The file description table contains several fields in which practically all schools will have in their admissions data base - the name of the applicant, his address, place of birth, SAT scores, his rank in class. You will notice some fields which are peculiar to Furman's admissions process. Since Furman is a Baptist-affiliated school in South Carolina, they give preference to Baptist applicants, applicants whose fathers are preachers, etc. Therefore, Furman has in their admissions data base certain fields which other schools might not need. But this is one of the virtues of a generalized data management system! If your particular college does not need a data item in its data base, it just doesn't put it into the file description!

The Clarke College Alumni Information File contains alumni names and addresses, gifts that are given for the last year and the previous two or three years. Of course, this is a real good system if you really need to get money, and what colleges don't today? All you need is a report of all the alumni who gave two years ago but who didn't give this year. If you know that someone is going out to different towns in the nearby areas, you can have this report printed out in geographical order. So if your alumni donor officer is going out to collect money in Hoboken, Deep Step or another nearby town, you can give him a list of contributors who have not given this year. This file description table looks very similar to the admissions system file description table except that the data items in the table are different. The same set of computer programs are used for both.

The file description table of the Development Office Current Gift File at Furman University keeps detailed information all the way down to the level of ledger account number, the amount of the gift and the date of the gift. This particular data base would allow people to get various reports out. For example, they can have a listing of people's names by graduating class who have given money to the college, as well as the amount each person gave. A list of all donors in descending order of the amount given might be interesting. There is also a field in the description for payment on pledge. You may also want a list of all people pledging a sum of money but as yet are unpaid.

The Development Office Pledge File, another data base which Furman has set up that allows them to keep record on every person who has pledged a gift to the school for that year. The data in this particular data base carries such items as identification numbers, the name of the donor, the date of the pledge, the amount of pledge, the amount that is due each quarter over 20 quarters and the date of the last payment made. Now from this data base one may receive reports on persons making payments during a given month. A list of all persons who make payments this quarter, etc., is, therefore, obtained.

The Furman University Development Office Donor History File maintains a record of each donor: a record of the degree(s) earned, if the donor is a Furman graduate, together with his name, address, the date of his last gift(s), the amount and the gift history for the last five or ten years.

A file description table can show a library acquisition system. In this file, records are kept on each order the library places: the title of the book being ordered, date of publication, other information about the book, the department that should be charged for it and even the accession and Library of Congress numbers. From this data base one can get reports showing the books which have been ordered, all books which have been ordered by a particular department, a list of books by Library of Congress number and so on.

FURMAN ADMISSIONS FILE 70-71
FORMAT AS OF FEBRUARY 12, 1971

FIELD DESCRIPTION	ID CODE FOR SORTING AND/OR SELECTING	ID CODE FOR PRINTING	NUMBER OF PRINTS POSITIONS	COLUMN HEADINGS ON REPORT	EDIT WORDS FOR PRINT FIELDS	FACTORS USED IN STATISTICAL ROUTINES
SOCIAL SECURITY NO.	1	1	9	SOC SEC		
1ST & 2ND NAME/INITIAL	2	2	13	NAME		
LAST NAME	3	3	15	LAST NAME		
INITIALS	4	4	2	IN		
PREFERRED NAME	5	5	9	PREF NAME		
SEX	6	6	1	S		
APPLICANT BIRTHDAY	7	7	6	BIRTH		
PLACE OF BIRTH	8	8	16	BRTH PLACE		
PLANNED DATA ENROLLMT	9	9	3	DE		
BOARDING OR COMMUTING	10	10	1	B		
TYPE-NEW, TRANS, RE-AD	11	11	1	T		
EARLY DECISION	12	12	1	E		
CAREER CHOICE	13	13	2	CR		
APPLICANT DENOMINATION	14	14	4	DENM		
APPLICANT HOME ADDRESS	15	15	23	ADDRESS		
CITY	16	16	13	CITY		
STATE	17	17	2	ST		
ZIP CODE	18	18	5	ZIP		
SC COUNTY CODE	19	19	2	CC		
HOME PHONE	20	20	10	PHONE		
MARITAL STATUS	21	21	1	M		
NAME OF SPOUSE	22	22	9	SPOUSE		

CONTINUED ON NEXT PAGE

Figure III-1. Sample File of a Data Base

CONTINUED
FURMAN ADMISSIONS FILE 70-71

FIELD DESCRIPTION	ID CODE FOR SORTING AND/OR SELECTING	ID CODE FOR PRINTING	NUMBER OF PRINTS POSITIONS	COLUMN HEADINGS ON REPORT	EDIT WORDS FOR PRINT FIELDS	FACTORS USED IN STATISTICAL ROUTINES
NUMBER OF CHILDREN	23	23	1	C		
FOREIGN STUDENT	24	24	1	F		
ALUMNI RELATED	25	25	1	A		
PARENT OR GUARDIAN CODE	26	26	1	P		
PARENT OR GUARDIAN NAME	27	27	23	P/G NAME		
P/G OCCUPATION	28	28	10	OCCUPATION		
P/G EMPLOYER	29	29	30	EMPLOYER		
HIGH SCHOOL F/W GRADUATED	30	30	15	HIGH SCHL		
CEEB HS CODE	31	31	6	CEEB		
TYPE HIGH SCHOOL	32	32	1	H		
FU SCHOLAR	33	33	1	U		
NAT'L MERIT SCHOLAR	34	34	1	N		
LEADERSHIP	35	35	2	LD		
LITERATURE-EDITOR	36	36	1	L		
MUSIC PARTICIPATION	37	37	1	M		
ATHLETICS	38	38	2	AT		
LAST COLLEGE ATTENDED	39	39	15	LAST COLL		
CLASS RANK	40	40	4	RANK		
CLASS SIZE	41	41	4	SIZE		
SAT-VERBAL	42	42	3	STV		1.00
SAT-MATH	43	43	3	STM		1.00
WEEK APPLICATION REC'D	44	44	3	WK		
PREDICTIVE GPA	45	45	3	GPA		0.01

CONTINUED ON NEXT PAGE

Figure III-1. (Continued)

CONTINUED
FURMAN ADMISSIONS FILE 70-71

FIELD DESCRIPTION	ID CODE FOR SORTING AND/OR SELECTING	ID CODE FOR PRINTING	NUMBER OF PRINTS POSITIONS	COLUMN HEADINGS ON REPORT	EDIT WORDS FOR PRINT FIELDS	FACTORS USED IN STATISTICAL
LATEST CLASS RANK	46	46	4	LRNK		
LATEST CLASS SIZE	47	47	4	LSIZ		
HIGHEST SATV	48	48	3	HV		
HIGHEST STAM	49	49	3	HM		
BOARD DECISION	50	50	1	D		
APPLICANT RESPONSE	51	51	1	R		
FINANCIAL AID	52	52	1	F		
TYPE AID	53	53	2	TA		
CONVERTED RANK IN CLASS	54	54	3	CON		0.10
LOADED ON SIS DISK	55	55	1	L		
ENROLLED FALL TERM	56	56	1	E		
HIGHEST SAT TOTAL SCORE	57	57	4	HTOT		1.00

Figure III-1. (Continued)

We should point out here, in case you have not already recognized it, that each of the previously discussed reports were generated by the same programs. They are the programs which make up the NLHE Information System. The thing that makes each system different from the others is the file description table. The file description table is loaded in by a particular program that is also a part of the NLHE Information System. So it is one set of programs by which all of the previous applications can be easily realized.

Now let's take one of the preceding applications, the Furman admissions file we looked at first, and discuss some of the sample reports that can be obtained from this data base. For example, we can print out in alphabetical order all female applicants who applied and have been accepted under the early decision plan. You can see this will be a very useful report as far as dormitory space is concerned, etc. You might want an alphabetical list of just the females who have been accepted and who had applied under early decision. We included other data which are not directly related to the subset that we selected, but are useful information to have: social security number, first name as well as last, sex, decision status, SAT verbal, SAT math, rank in class and highest SAT total score, The early decision indicator is headed by the column marked E on the report. To get this report from the NLHE Information System involves only feeding in seven cards to the computer that indicate the selection criteria for selecting the subset of the file desired. They also tell the computer which data to print, the date of the report, etc. These cards are very easily constructed by secretaries, keypunch operators or computer operators. There is absolutely no need for the computer programmer to intervene to get this report.

To demonstrate how one may select subsets of the admissions file, we could select all persons whose mean score was greater than 1050 on a cumulative SAT and who were in the top ten of their class. We print this report out in alphabetical order and print last name, first name, highest SAT total and rank in class. In this particular case there were only 22 applicants who met these criteria out of a sample data base of about 200 applicants. To get this report we only had to feed in 8 cards. The only difference in this report and the last one we discussed is we had different selection criteria, we printed out different fields and it may have been sorted into a different order. *The same program generated both reports.*

A third report which is generated from the admissions data base is what is commonly called in an admissions office the "High School Book". It is a listing, in order by high school (a separate page for each school), of all applicants from that high school who have applied. One page out of this high school book, for Greenwood High, lists, in alphabetical order, all applicants as well as their address, phone number, board decision and high school attended. This will be a useful report for the recruiting officer going to Greenwood, South Carolina. Using the Greenwood page from the high school book he can call any particular applicant while in Greenwood and perhaps inform him of the status of his application, adding what one might term, "that personal touch." Also, the recruiting officer visiting a high school advisor or counselor can use the report to give the counselor the status of all applicants of that school. To generate this report with the NLHE system only takes about 6 or 7 cards. All you have to do is tell it to sort the file into a particular order, to page whenever it detects a change in high school code and to print out the data on each particular applicant needed.

FREQUENCY DISTRIBUTION

Report generation isn't all that the NLHE Information System can do. In most generalized data management systems there are capabilities other than file maintenance and simple report generation. For example, frequency distribution is a useful report in the admissions process because it can give you a snapshot view of what the average applicant looks like, as well as looking at the distribution of all applicants.

One particular report, a frequency distribution for SAT verbal scores, includes only those students who are approved early decision applicants. Frequency distribution starts at 200 and goes to 800, which is the range of possible scores on SAT verbal. To the side of each interval are the number of observations or applicants which fall in that range, the cumulative frequency, the per cent and cumulative per cent. At the bottom of the statistical report the maximum value, minimum value, average value and standard deviation are printed out as well. Generation of a frequency distribution with the NLHE system is simple. All you need to do is add one card more than you have been doing in your regular report. On this card you tell it the lower end of the frequency range, the number of steps you wish the frequency distribution to go up and the width of each step. You also tell it on which field you want the

frequency distribution done. Frequency distributions and all other statistical reports done by the NLHE system can be done on any selective subset of the data base.

CORRELATION COEFFICIENT CALCULATION

Another possible report is a sample of correlation coefficient calculation. The correlation coefficient is a Pearson product correlation coefficient for any two fields. In this particular report the SAT verbal and the SAT math, the cumulative grade point average and SAT total, and predicted grade point average and cumulative grade point average were correlated. There are also supplementary statistics which consist of average standard deviation and the number of cases.

TABULATE REPORT

The final type of report we can get out is the tabulate report. The admissions office may want to know the number of female students and the number of male students applying, whether they will be boarding or commuting, and their geographic distribution by state within each category. That's what this report gives you. It allows you to tabulate up to 10 fields of cross tabulation. For example, there are 128 female boarding students from Florida and five female boarding students from Kentucky. We see on the second page of the report that there are 817 female boarding students and then the female commuting students start to be tabulated. At the bottom of this page there are 133 female commuting students and a total of 950 female applicants. This particular report selected out only female students; however a report of male students could have been added on very easily. To generate this tabulate report with the NLHE system requires only 3 cards.

CONCLUSION

This completes our survey of the NLHE Information System. It should be pointed out that this is only an example of generalized data management systems. The NLHE System, like all other systems, has its vices and its virtues. Most of its vices come from the fact that it was designed to run on a small computer. If you have larger computers than an 1130, it is likely you will have a much more comprehensive generalized data management system.

Now let's review what we have discussed in this paper. First, we saw there are quite a few problems facing the small or medium size computer centers. They don't have enough manpower and they don't have enough money. The computer is small. The traditional approach of application-oriented programming can result in even further waste of manpower and dollars. One possible solution to these problems is to use a generalized data management system, which allows an application to be set up and run on a computer without any additional programming other than what was developed to implement the generalized system initially. This means that with one set of programs the small college computer center user can increase his number of applications packages. Of course, there is a price which is paid, the price of having a usually slower system running on the computer and also a system which doesn't have all of the nice "bells and whistles" of a custom-tailored program. However, using a generalized data management system to initially set up a particular computerized application can be very rewarding as far as dollars and manpower is concerned.

The National Laboratory for Higher Education is trying to develop another system which will help the small college computer center. The system which we currently have under development is a Generalized Budgetary Accounting General Ledger System for the IBM 1130. This system will allow the business office in a small college or medium size college to maintain detail information related to their general ledger accounts. It will give reports on encumbrances, budgetary amounts, all unencumbered balances and on all income and expense accounts. The system will also accept any existing chart of accounts; therefore the business office doesn't need to modify their accounting numbering system in order to be compatible with this general ledger computer system. The system will handle multiple campuses, funds and subfunds (or schools). It is hoped that this general ledger system will be completed by the end of this summer ('73) and will be available for the small or medium size colleges that are now overloaded with

- Keeping records of the dollars they have spent and promise to spend.
- Being able to budget their expenditures and incomes on an accurate and timely basis.

SPECIAL INTEREST GROUP SESSION

INSTITUTIONAL RESEARCH: ITS PURPOSE AND SCOPE

by
James B. Gunnell
Ohio State University

Abstract

Although Black colleges and universities have many areas of concern, it is evident that they should immediately address themselves, specifically, to those of management (that is the efficient allocation of fiscal and human resources), goal definitions and the classification of objectives. Thus, this presentation is based on the premise that these concerns can be best addressed through the functional role of institutional research in developing institutions. To provide data to assist the administrator in making managerial decisions related to:

- *Institutional Operations*
- *Program Planning and/or Modifications*

Short range as well as long term types of studies under the major classifications of institutional operations and program planning and/or modification will be discussed. Attention will be given to the data requirements of studies in each class and, more specifically, to the procedures and methodologies for providing the administration with the required data. Although not discussed in detail, the specific skills needed for one to function effectively as an institutional researcher will be stated.

In spite of one's statistical or quantitative expertise in the area of educational research, of utmost importance is the acceptability of the function of the office of Institutional Research in general and, more specifically, of those individuals associated therewith, as an integral part of the college or university program. Thus, the problem of establishing credibility, both internally and externally, becomes very important during the initial development stages of an office of Institutional Research. Some ways of establishing such credibility will be discussed.

Finally this presentation will address issues related to the position of Institutional Research in the administrative structure and the relationship of this office with the Office of Development that allows the institutional researchers to most effectively carry out their functions.

OFFICE OF INSTITUTIONAL RESEARCH

I. Function: To provide data to assist the administrato in making managerial decisions related to:

   A. Insitutional Operations

   B. Program Planning and/or Modification

II. CLASSIFICATION OF STUDIES

   A. Institutional Operations

      1. Operationally Related Models
      2. Descriptive Studies

   B. Program Planning and/or Modification

      1. Policy and Planning Studies
      2. Evaluation Studies

   C. Operationally Related Studies

      1. Enrollment Projections
      2. Facilities usage and needs studies
      3. Cost-relationship studies

   D. Descriptive Studies

      1. Faculty and salary studies
      2. Student profiles and administrative status
      3. Opinion samplings

   E. Policy and Planning Studies

      1. Institutional goal-setting
      2. Organizational and management studies
      3. Extra-institutional forces

   F. Evaluation Studies (Academic)

      1. Student Follow-up Studies
      2. Curriculum and Multi-Program Evaluation
      3. The Teaching Learning Process

III. DATA REQUIREMENTS

   A. Institutional
      1. Internal
      2. External
   B. Faculty and Staff
   C. Students

IV. PROCEDURES FOR OBTAINING & PROVIDING THE ADMINISTRATION WITH REQUIRED DATA

   A. Data Collection
   B. Data Organization
   C. Data Analysis & Evaluation
   D. Report Preparation
      1. Initial draft
      2. Final document
   E. Report Dissemination
      1. Audience
      2. Logging
      3. Mode

V. GENERAL SKILL REQUIREMENTS

   A. Surveying
      1. Interviewing
      2. Questionnaire, etc.
   B. Retrieval
   C. Data Management
   D. Coding
   E. Logging
   F. Measurement
   G. Statistics
   H. Interpretation
   I. Report Writing
      1. Identifying Audience
      2. Type (style; format)
      3. Displays, e.g., tables, figures, charts
      4. Editing
   J. Communication
      1. Interviewing
      2. Conducting Conferences

VI SPECIFIC SKILL REQUIREMENTS

   A. Scaling
   B. Coding
   C. Item Writing
   D. Reliability
   E. Validity
   F. Score Transformation
   G. Correlations
   H. Central Tendency
   I. Variability
   J. Observational Techniques
   K. Project Scheduling

L. Reviewing Literature
M. Types of Data
N. Level of Measures
O. Types of Variables
P. Writing Objectives
Q. Use of Existing Computer Programs
R. Population & Sampling
S. Data Display
   1. Numbering System
   2. Lettering System
   3. Labeling
T. Record Keeping

VII. ESTABLISHING CREDIBILITY

A. *Internally*

1. Conduct one or more well-designed, non-threatening studies (e.g., impact studies, enrollment projections).

2. Never conduct a sutdy related to a specific unit (department, faculty, etc.) without involving the personnel affected.

B. *Externally*

1. When appropriate, involve outside resources (external to university setting).

2. Conduct studies that are beneficial to outside audience (external to university setting).

IX. POSITION OF IR OFFICE IN THE ADMINISTRATIVE STRUCTURE

A. Accountable directly to the president
B. Accountable to a designated vice president or dean
C. Located within an academic department

QUESTIONS FOR DISCUSSION

1. What types of studies are presently being conducted by your office?

2. How are the activities of your office being financed?

3. Has your office established credibility on campus?

4. Do you have a staff? Professional? Clerical?

5. Are the results of your studies readily accepted by administrators and faculty?

6. DISCUSSION of any IR issues raised by participants.

Section IV

INSTITUTIONAL RELATIONS
February Session

BASIC LINKAGES AND RELATIONS AMONG COLLEGE AND UNIVERSITY STRUCTURES AND PERSONNEL

by
Richard Arrington
Alabama Center for Higher Education

NEW WAYS OF THINKING

Higher education and the way we think about it has undergone some facelifting in America in the last few years. Those of us who work in higher education have been forced in many instances to rethink some of our philosophy about education and about how things ought to be done. Some of us, though reluctant to admit it, have had to adopt a "new way of thinking" about the educational process. We have seen some of our nation's larger and more prestigious institutions reexamine their policies on matters ranging from admissions to cooperative planning. But some of the most satisfying changes I have seen have occurred in many of our developing institutions. Under attack for our very reason for existence and the quality of our efforts, we were forced to reexamine our thinking—about our missions, our credibility and, most importantly, our belief in ourselves.

This examination was, I think, one of the most healthy things to happen to developing institutions in this country. It helped us to come to grips with clearly defining and understanding our identity and to know with unwavering certainty that the mission which we have as institutions serving a special type of clientele is indeed a credible one. It helped us to firmly believe and state unequivocally that the task which had been ours, and ours alone, for decades, that of developing an effective educational program for long-negelcted clientele of students with a culture and life-style different from that of the majority society, was one of the biggest and most important challenges facing higher education and society today.

With varying commitments, institutions throughout higher education came somewhat belatedly to share in the task of providing educational opportunity for the clientele which we had served all along. We helped the educational world to see more clearly the significance of statements such as that of Keeton and Hilberry:

> Our study has convinced us that safety for colleges in the future lies in greater risks—not thoughtless gambling, but deliberate changing of socially important and hitherto unmet responsibilities. . . It has been habitual among college examiners to view rising college board scores for entering freshmen as an essential mark of an improving college. Typically also some faculty in a college with this history insist upon planning curriculum and conducting instruction as if the students were, or should be, of greater abilities and more intellectual interests than they are. Here again the college willing to take risks must make for itself a better future. A segregated Negro college with few freshmen scoring above the national SAT mean might better aspire to major impact on them on like Caucasian students than try to climb the CEEB escalator . . . .[1]

"EXCELLENCE FOR WHAT?"

We also helped the education world to more readily grasp the import of the thinking about the elusive quality of excellence as conveyed by Nevit Sanford in his book entitled *Where Colleges Fail* in a chapter entitled "Excellence for What?"

> I am afraid that most colleges in America—and certainly most graduate schools—worry more about whom they turn out than about how much they have done for him. They want to upgrade themselves in the academic world and expect to do so by recruiting "brighter" students. They can raise standards, attract a better-known faculty, and gradually acquire more academic glamour. They are somewhat like the psychotherapist who undertakes to maintain a good reputation for himself by taking only patients who are curable, relatively untroublesome, and affluent. He leaves the difficult, unpromising, or impecunius patients to the beginners.

[1] Keeton, Morris and Hilberry, Conrad, *Struggle and Promise -A Future for Colleges* McGraw-Hill, Inc., 1969

> Instead of judging a college's success by who goes there and how well they are expected to do, I want to suggest that we focus on what happens at the college, on what kinds of change it induces. For example, if a college admits students with relatively primitive tastes, shallow interests, values unmodified since childhood, and rigid patterns of thinking, and, if after four years, it turns out students who are flexible, imaginative, discriminating and capable of self-expression, the college is undoubtedly a success. It would be a success even if none of its teachers were ever heard of outside its own locality and the level of accomplishment of this students at the time of graduation were not as high as that found in better known institutions.[2]

Indeed, we helped thrust the case for educational opportunity and the need for reexamining our approach to education for the so-called disadvantage to the forefront of concerns of higher education. It may be true that some developing institutions clearly understood their roles all along, but it is equally as clear that some did not, as they worked harder at being like some other institution than developing their own identity. So the world of higher education and the thinking of those who comprise its professional ranks have had to reexamine their philosophy and their way of thinking.

COOPERATIVE ACTIVITY

All of higher education may well be going through yet another stage which will force it to reexamine some of its cherished and antiquated views. This is expressed in our concern about "accountability" which forces us to think more seriously about management. Also from this concern has developed a movement for developing what we commonly refer to as "linkages" or "interinstitutional cooperation" or the consortium movement.

Cooperative activity has been with us for many years. However, the prevalent pattern of institutional operation has been, and probably always will be, one of striving for academic excellence through competition. But the stress and pressures on higher education have necessitated a more balanced proportion of cooperation and competition.[3]

The term "interinstitutional cooperation" may be inappropriate, if taken to imply that institutional personnel must harbor feelings of altruistic and selfless unconcern for their own college's welfare. This rarely occurs. The historical insularity of institutions of higher education and their deliberately distinctive nature prevents such a phenomenon in collectivities regardless of how rational and welcome such a development may appear at times to be. Self-sufficiency has been the watchword too long to be easily abandoned.[3]

It would be presumptious as well as unnecessary for anyone to support that each institution should consider cooperation as its number one priority. It would also be unrealistic for institutional personnel to expect that a consortium's future and its "raison d'etre" will emerge in clear functional terms when their own actions are based upon a "when all else fails, try cooperation" attitude.

What I want to do here today is to focus attention upon two aspects of what we call "basic linkages" or "consortia". Part of our focus is to be upon the traditional examination of interinstitutional cooperation, its past and present state and its projected future. But more importantly, we also want to focus on the internal situation which exists within institutions which have direct bearing upon the success or failure of basic linkages and which we hear so very little about. I would like to talk about sensitive issues of where institutions and individuals fail. Intrainstitutional self-examination is too often overlooked. Too little is said about the role of administrators and faculty. Too often consortia are seen as external agents by member institutions and not as being of the institutions or extensions of them. Hopefully, we can be open, honest, critical, and constructive with our response. We want to place intrainstitutional cooperation within the perspective of its role in interinstitutional cooperation. We want, after looking at the state of linkages between institutions, to look critically at the state of linkages between individuals and between administrators and relate these to linkages between institutions.

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[2] Sanford, Nevitt, *Where Colleges Fail* Jossey-Bass, Incorporated Publishers–1967

[3] Grupe, F. H., *Founding Consortia: Idea and Reality* J Higher Education, December, 1971

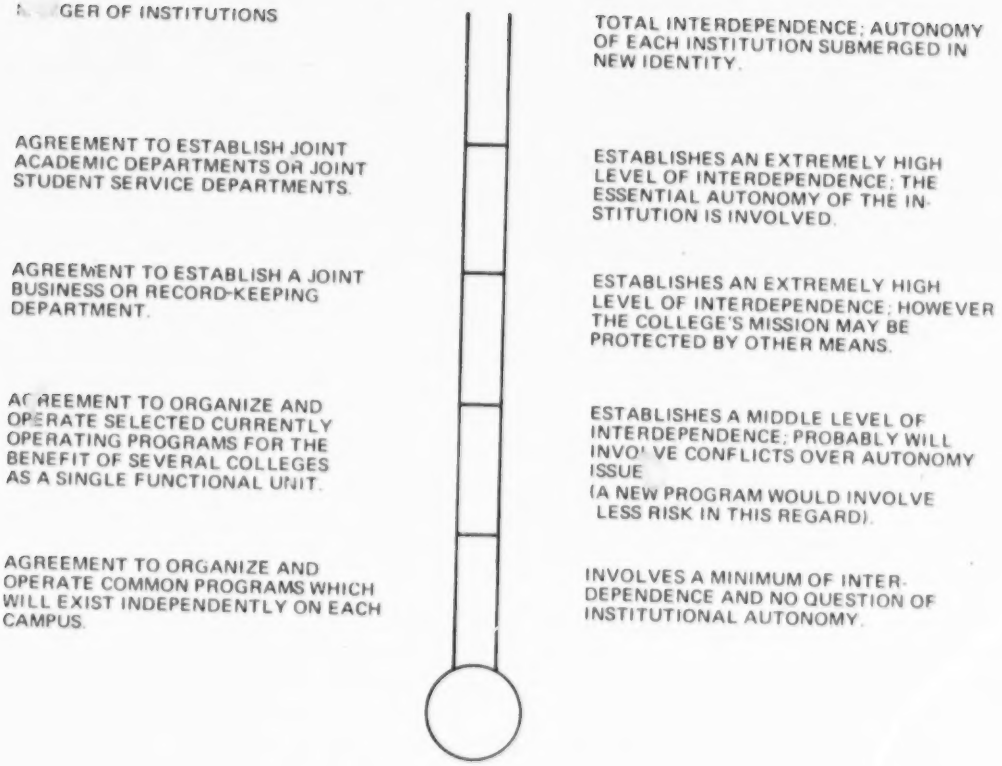
GER OF INSTITUTIONS
TOTAL INTERDEPENDENCE; AUTONOMY OF EACH INSTITUTION SUBMERGED IN NEW IDENTITY.
AGREEMENT TO ESTABLISH JOINT ACADEMIC DEPARTMENTS OR JOINT STUDENT SERVICE DEPARTMENTS.
ESTABLISHES AN EXTREMELY HIGH LEVEL OF INTERDEPENDENCE; THE ESSENTIAL AUTONOMY OF THE INSTITUTION IS INVOLVED.
AGREEMENT TO ESTABLISH A JOINT BUSINESS OR RECORD-KEEPING DEPARTMENT.
ESTABLISHES AN EXTREMELY HIGH LEVEL OF INTERDEPENDENCE; HOWEVER THE COLLEGE'S MISSION MAY BE PROTECTED BY OTHER MEANS.
AGREEMENT TO ORGANIZE AND OPERATE SELECTED CURRENTLY OPERATING PROGRAMS FOR THE BENEFIT OF SEVERAL COLLEGES AS A SINGLE FUNCTIONAL UNIT.
ESTABLISHES A MIDDLE LEVEL OF INTERDEPENDENCE; PROBABLY WILL INVOLVE CONFLICTS OVER AUTONOMY ISSUE
(A NEW PROGRAM WOULD INVOLVE LESS RISK IN THIS REGARD).
AGREEMENT TO ORGANIZE AND OPERATE COMMON PROGRAMS WHICH WILL EXIST INDEPENDENTLY ON EACH CAMPUS.
INVOLVES A MINIMUM OF INTERDEPENDENCE AND NO QUESTION OF INSTITUTIONAL AUTONOMY.

Figure IV-1. Institutional Autonomy as Affected by Various Levels of Cooperation

Now it is my task to talk about linkages here today because of my work as the Executive Director of the Alabama Center for Higher Education (ACHE), a consortium of the eight Black senior colleges in Alabama. This is a consortium founded in 19[illegible] with the aid of a Ford Foundation grant and nurtured along by the Title III program and some committed colleges with additional private foundation support. ACHE is a consortium where cooperation between eight colleges spread throughout Alabama goes on at a level which can be called decent and significant but is still in a developmental state. I say this, though we are a consortium which has maintained an average of 12 cooperative programs over the past 3 years, all supported by external funding sources, and which has had good support from the presidents and member institutions, good involvement at the deanship level and, in a number of instances, good faculty involvement.

Surely we all know that consortia are not new to higher education. However, they have become much more fashionable in recent years aided by the interest of the Title III program and some private foundations, as well as by fewer available dollars for education. The movement is still, however, very much in a developmental stage. It is now going through testing and reexaminationn and some confusion. Forty years elasped between the establishment of the first consortia at Clairmont and Atlanta University and their recent development at a more rapid rate.

In the past I found that people readily talked about linkages and interinstitutional cooperation. Oftentimes this simply smacked of rhetoric alone, and we all know that rhetoric alone is an important agent for change. In earlier years when it came to selling educators on interinstitutional cooperation, it was somewhat like selling people on religion. Most folk

tell you they believe in it and believe its good. Of those who don't believe in it, few are gutty enough to admit it. But of all of the professed believers, darn few of them practice it.

But, with the rapid increase in the number of consortia, interinstitutional cooperation must be moving to a new plateau.

To illustrate the newness of consortiumism, the founding dates of 51 consortia listed by the *Director of Academic Cooperative* arrangements are:

1925-48	1953-58	1961-64	1965-70
4	5	10	32

William G. Kelly in his study of the consortium and the Developing College for Title III has suggested that interinstitutional cooperation evolves through stages (communication, the production of common services and programs, and the establishment of structured interdependence.)[4]

FIVE CRITERIA FOR COOPERATIVE ARRANGEMENTS

As the consortium movement has grown, efforts to refine the nomenclature so at to draw distinctions between different types of consortium have developed. Five criteria are usually cited to define what is referred to as "voluntary academic cooperative arrangements." These are:

- Voluntary formal organizations
- Three or more institutions
- Multi-academic programs
- Specific programs administered by at least one full-time professional
- Required annual contribution or other tangible evidence of long-term commitment of member institutions

This structured format of what is a consortium is less important than the cooperative spirit which creates the group and makes it succeed. For our purpose a consortium can be almost any type of cooperative arrangement.

A consortium's potential is primarily set by the characteristics of its members, rather than by the nature of the organizational structure of leadership capability of the consortium staff.

CONSORTIA–"PAPER TIGERS"?

The growth of consortia has resulted in the development of some "paper tigers"–consortia which exist mainly on paper. Many consortia have been disappointing in providing expected results. Some consortia spend all of their time in "planning sessions" involving a significant number of committees made up of institutional representatives but never move from planning to implementation. As important as planning is, and though it is recognized as a necessary and continuous process, an effective consortium must obtain resources and implement programs.

Another problem has been that institutions have often failed to evaluate consortium membership. In their haste to be a part of any effort which sounds promising some schools have rushed headlong into cooperative programs which are duplications and which place added burden upon small staffs and faculties. On the other hand some colleges are forced out of political necessity into some consortium memberships. The often heard cliches about more effective utilization of resources, program enrichment, economy of operation and institutional revitalization combine to make a glib ideology that is captured in significant operational arrangement only with difficulty.

Few people recognize the limitations and constraints circumscribing the freedom with which any consortium can act. An inaccurate image is often displayed by consortium planners regarding the difference between cooperation as an untested abstraction and as it appears in practice.

Long-range goals are desirable but difficult to develop for the consortium. One factor which prohibits the development of long-range planning is the implicit, but unrecognized, role the consortium is

[5] Kelly, William, *The Consortium and the Developing College* (A Report for the Division of College Support–USOE), 1972

forced to assume by action of its members. It is difficult, for instance, to forsee a consortium being able to develop rational long range plans or suitable programs if its members are unable or unwilling to construct and share their own plans. Without the information needed to structure a long-range plan many consortia are destined to maintain an orientation toward temporary and peripheral projects largely unrelated to one another and based more on the priorities of funding agencies than on recognized, consciously selected, institutional concerns.

But perhaps the greatest obstacle to the vitality of a successful cooperative effort is human resistance. The human shortcomings which undermine the vitality of cooperative ventures include desire for autonomy, fear of system success, negative attitude towards centralization, and belief of the superiority of one's own institution.

PRESIDENTIAL INVOLVEMENT AND SUPPORT

One thing is now very clear, if consortia achieve their potential it will begin with presidential action. The Director can't do it; he can only serve as a catalyst. The consortium can't do it—it is only an abstract configuration fueled with commitment. If collective action is worthwhile and is to be successful, it must have the interest, participation, and support of the top administrators. Talk all you want, but if you review your own institution's history, you'll probably find that it was the "over-worked administrator" rather than the "creative professor" who initiated most advances.[6]

Presidential involvement and support is always a critical factor in consortium development; witness the heavy representation of presidents on nearly all consortium boards. Presidents play an unparalleled role in securing the interest and effort of their staff in consortium projects and activities. While presidential enthusiasm is a necessary prerequisite for effective interinstitutional cooperation, it is by no means sufficient. Day-to-day operations require equally positive and unequivocal participation and rewards for individuals located throughout each campus. Weak links cannot be strengthened without a substantial expenditure of effort and time by each institution's executive. Still, the name of the game is interinstitutional cooperation and not just interpresidential cooperation. Within limits, each campus representative must, to some degree, be able to speak and act for their own institution. Any organization which has to wait 2 or 3 months before effective decisions can be made by its governing board is unilkely to move very far or very fast. Presidential support and encouragement are needed to ensure that each institution's personnel approach the consortium as a potential vehicle for programmatic changes rather than an instrument for maintaining institutional image or a medium of professional development.

TEAM MEMBERS IMPORTANT TOO

Consortium efforts often break down because of neglect of responsibility by other members of the administrative team. The neglect stems sometime from the lack of effective communication between team members at an institution and the resulting lack of knowledge of the institution's commitment to the consortium program. Team members often do not understand the implication of the task they are asked to perform. The fact that new information borne of consortium efforts can result in reorganization and possibly job realignments instill fear into some members of an administrative team and lead to a stifling of the institution's participation in cooperative endeavors. Fear of risk lessens experimentation and results in loss or organizational vitality.

The weaknesses of team members and the failure to follow through on assignments and responsibilities by members of the administrative team are two of the major causes for failure of cooperative efforts at institutions.

The efficiency of any organization, including the administrative team, depends upon the quality of the interpersonal relationships between members.

Interpersonal relationships or interpersonal competence and their effect upon organizational effectiveness has been the focus of significant amount of research by behavioral scientists. Scientists have dealt with rationality (objectives) in organization and the importance of specialization power and control in organizational effectiveness (factors such as the degree of commitment experienced). Increased interpersonal competence is probably a first step towards organizational effectiveness.

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[6]Grupe, F. H., *Founding Consortia: Idea and Reality* J Higher Education, December, 1971

Basic organizational change usually require modification of values. To affect changes, organizational, technological, and interpersonal factors will require alteration. We have heard much about group dynamics and teamwork. The move towards cooperation requires that we look anew and with new emphasis at group relations.

Finally, just a word about faculty involvement and understanding. Perhaps one of the most frustrating feelings experienced by consortium personnel is that of learning the majority of the faculty knows nothing about its existence, or understands little about its purpose. Faculty involvement is basic to the continued flow of new ideas for cooperative venture. Without good faculty involvement, interinstitutional cooperation will be severely limited.

SPECIAL INTEREST GROUP SESSION

COOPERATION WITHIN THE INSTITUTION

by
Frederick A. Hill, Jr.
Black Affairs Center, Inc.

Abstract

To keep abreast of increasing demands for service, today's colleges and universities must maintain flexibility. Students, instructors and administrators alike are sensitive to the need for change. Additional responsibilities require that they function together on a more interdependent, cooperative basis.

This special session focuses on the issue of cooperative. Participants will better understand how factors—interaction patterns, variations in tasks—affect the performance of heterogeneous work groups.

The afternoon's activity will include problem-solving situational exercises, as well as a case study illustrating the dynamics of intergroup cooperation. In addition, an atypical model for intervening in racially tense school settings will be presented.

INTRODUCTION

Colleges and universities with predominantly Black student enrollments are fast gaining recognition for their outstanding achievements over the years. Yet, despite changing attitudes and landmark successes with so-called "disadvantaged" students, the survival and continued growth of these colleges and universities depend on how well they utilize their limited resources.

It is becoming increasingly difficult for individual schools to progress with a "go-it-alone" philosophy. Consequently, many institutions are demonstrating a willingness to meet the challenge of the future together. They are joining innovative consortia, such as Management Information Systems (MIS), to achieve common objectives. However, the development of complementary on-campus administrative changes is lagging. Some attribute this to individual selfishness and refusals to cooperate. In response to expressed interest in cooperation, Special Session #4 was offered.

THREE FORMS OF INTERDEPENDENCY

The discussion leader began by introducing a paradigm which outlined three forms of interdependency—cooperation, competition and conflict—and their interrelatedness. The participants then actively took part in two exercises, one depicting a competitive situation and the other a conflict situation. The aim of each exercise was to help participants understand how competition and conflict violated the following dimensions of cooperation.

- Awareness of the total problem to be solved
- Awareness of how one can personally contribute to solution
- Awareness of potential contribution of others
- Knowledge of how to help others make a maximum contribution toward solving problem

The session was designed to help those in administrative positions identify ways they might better stimulate and promote cooperation in their own institutions.

PROBLEM SOLVING EXERCISE

Two teams were formed for the first exercise and given some problems to solve as quickly as possible with the least amount of errors. Seated side-by-side in a single line, the team members worked in silence on a problem. Each person selected his task from several passed to him by his neighbor. He, in turn, passed the remaining problems to the next person and so on down to the last. The problems selected were more concerned with a person's position in the chain of command than with skills, knowledge, experience, etc. This particular administrative arrangement resulted in a number of errors, consumed much time and led to low ratings in morale.

During the discussion which followed, participants associated the exercise with experiences they had with traditional management structures. It was noted that rigid hierarchies often stiumulate competition instead of cooperation. One of the conclusions drawn was that highly segmented institutions, particularly those which rely on tradition more than on current needs to allocate personnel resources, are not always the most effective.

SECOND EXERCISE

The second exercise was a role-play involving a supervisor and his subordinates. This time the rules permitted face-to-face dialogue.

The supervisor and his crew struggled among themselves. Finally they resolved the conflict over a shortage of material resources to their satisfaction. However, the solution placed them in greater difficulty with upper management. They had tackled an organizational issue as though it were a personal problem. The group's failure to recognize the totality of the problem threatened to undermine the survival of the organization, which appeared to have limited resources. This exercise demonstrated how myopic problem-solving strategies tend to be counterproductive within the context of a broader community.

CASE STUDY EXERCISE

The concluding experience of the afternoon revolved around a case study. The setting was a de facto segregated school system. This exercise also helped participants examine their approaches to solving problems. Each problem had to be tackled in a unique fashion. One of these is replicated below. For practice, see if you can come up with the solution.

> In the following problem, each letter represents a different number.
>
> THINK
> +THINK
> KATHIN
>
> Can you figure out the total?

The discussion leader was engaged as consultant after interracial and intergenerational competition and conflict had reached the volatile point. The survey feedback techniques in conjunction with a problem solving approach similar to that required by the example at the bottom of page three (3) were employed by the consultant. By catering to the selfish hopes and fears of each vying group he successfully brought about substantive organizational changes in the way students, teachers and administrators related to one another and to the community.

CONCLUSION

Participants seemed quite pleased with the session's level of productivity. They indicated they were able to see what happends when one or more dimension of cooperation is overlooked or disregarded. They were also able to obtain a better understanding of how they might attempt to improve conditions in their own situations.

Regarding the Special Session itself, participants' responses to a reaction form collected at the close of the session indicated the majority of them felt: that use of time; the learning atmosphere; the use of facilities, instructional aids and materials; the level of participation and involvement and the format and content of the session were outstanding and more than satisfied their expectations. Further, they would like a repeat of the session at future conferences in accordance with the following recommendations:

- Rather than cover alot of material in a short space of time I think you should have covered and detailed one main idea. The first time trying to understand one's place in a structure is a bit heavy. Rather, we could have thoroughly understood the obstacles that impede groups from getting it togehter.

- Too bad time so limited! Repetition of group sessions (I, II, III, IV) at another time during the two day session would have permitted others (who desire) to have participated in this session.
- More time needed. More participants need to have an opportunity for this experience.
- More role playing to highlight major points.
- More in-depth study of a real live situation and solutions to such.
- That case studies be repeated and that a whole day be devoted to this.

SPECIAL INTEREST GROUP SESSION

A SYSTEMATIC APPROACH TO PROPOSAL WRITING

by
James Wiley Brown
Moton College Service Bureau

Abstract

The overall thrust of this paper is to relate what the ramifications of proposal writing are, what the proposal writer should know and what he needs to look for when considering the opportunities before him. To achieve this purpose, we are going to review in this order: (1) federal resources in support of higher education and how these reach the colleges; (2) systematic proposal programs on the local campus and (3) the process of proposal writing by the individual.

Federal funds that flow to colleges and universities are derived from legislation designed to meet national goals other than serving the particular ends of the colleges themselves. Thus, when we write proposals and seek federal support we must assure ourselves that what we want to do is within the scope of some national program and within the frame of some agency guidelines.

Since Black institutions in the past have poorly benefitted from federal subsidies, and there is sufficient promise at the present that this situation can be improved, a systematic approach to proposal writing should receive serious consideration by each institution. This involves an orderly procedure of strengthening the capacity and depth of proposal writers on the local campus, seeking funds in all the target areas of institutional life where possibilities exist and setting up a federal relations office in every true sense of the word to undergird the college's understanding.

INTRODUCTION

The overall thrust of this presentation is to relate what the ramifications on proposal writing are; what the proposal writer needs to know and what he needs to look for in consideration of the opportunities before him. To achieve this purpose, we are going to review in this order:

- Federal resources in support of higher education and how these reach the colleges
- Systematic proposal programs on the local campus
- Process of proposal writing by the individual

Federal Resources

As a special group of colleges and universities, our primary concern with federal grants is the same as with all institutions: we are looking for funds to enable us to strengthen, enlarge and expand our institutional opportunities. We are seeking to obtain much needed facilities, to improve the proficiency and effectiveness of our faculty and administrative staff personnel, to provide adequate financial stability to income derived from students and to move out on the growing edge of higher education with daring new attempts to serve our present age.

Until 1958, the federal government gave very little grant support to any colleges for any of these objectives. Since that time federal programs have come into existence designed to do a number of things: construct classrooms, buy equipment, provide scholarships and loans, improve curriculum offerings, train faculty and staff, and support developing institutions.

According to the Federal Interagency Committee on Education, in the fiscal year 1970, the federal government

spent $3.67 billion to aid colleges and universities. Of this amount $125.5 million went to traditionally Black institutions, a mere 3.48 percent of the total amount. These funds were dispensed through 18 federal agencies, but with the Office of Education in the Department of Health, Education and Welfare accounting for 68 per cent of all grants to all Black colleges.

There is one particular fact with which we must deal in setting our hopes for the federal dollar: the billions that flow to colleges and universities are derived from legislation designed to meet other national goals than serving the particular ends of the colleges themselves. From whatever source, federal funds for higher education are always geared to some objective assumed to be in the national interest. Thus, when we write proposals and seek federal funds we must assure ourselves that what we want to do is within the scope of some national program and within the frame of some federal agency guidelines. These programs derive from authorizing legislation as the source–Acts of Congress–and funds appropriated for specific purposes.

The authorizing legislation stipulates what department of government shall have control of the funds specified and defines the broad limits within which the funds may be used. The department of government designated formulates program objectives, issues guidelines for achieving them and dispenses the funds. All programs are included in the Federal Register as portions of the Federal Code of Regulations and are carried by Title in the Catalog of Federal Domestic Assistance (CFDA).

The CFDA is compiled for the Executive Office of the President by the Office of Management and Budget and is obtainable from the Superintendent of Documents at the Government Printing Office. Its purpose is to enable potential beneficiaries to identify types of assistance available to them and to inform them how they may obtain it. It describes each program with an identifying number; details of its purpose; who can apply for it and how they should apply; the Agency responsible for it; the authorizing legislation; the fiscal appropriation and program accomplishments of the previous year–with the range and average of financial assistance awarded to the various grantees.

Any person interested in how Black colleges and universities have fared in federal subsidies since 1958 can refer to two recent studies:

- *Federal Agencies and Black Colleges* (1969 and 1970), successive surveys in depth by the Federal Interagency Committee on Education.
- *Small Change: A Report On Federal Support for Black Colleges 1972*, a publication of the Southern Education Foundation.

This paper will not attempt to duplicate what has been done so extensively in the reports just mentioned, but we will say, in summary, that the picture is not one to warm the heart.

For example, more than a third of federal funds awarded to all traditionally Black institutions during the period of the last survey went to ten institutions, with 34 out of 111 institutions receiving less than $500,000 in total money. Four schools received no grants at all. Again, while our colleges and universities have benefitted more from student aid, resulting from passage of the Higher Education Act (HEA) of 1965, they have received practically none (0.3 percent in 1970) of the expansive funds for research and development which contribute so substantially to institution building through the supplementary payments that accompany the grants.

It has been claimed, of course, that this situation is only natural since Black colleges are for the most part undergraduate institutions, with few having the laboratories, specialized facilities and research personnel allowing them to compete against the more developed institutions for research and development contracts. Nevertheless, two questions remain:

- When do we get started?
- Isn't there something we and the federal government can do in this area to get things started?

There are encouraging signs on the horizon (the fiscal 1974 U.S. budget projections notwithstanding). Within the last two years we have developed indicators to the effect that, as our institutions of higher learning have improved their patterns and procedures in federal relations, they have obtained correspondingly more grants and awards. Tuskegee Institute, among the larger schools, and Rust College of Holly Springs, Mississippi, and St. Augustine's College, among the smaller ones, are prime examples that readily come to mind. There are other colleges and universities that could be cited in the same

vein, according to reports we have received at Moton College Service Bureau (MCSB). A second indicator stems from the fact that at the last report our colleges as a whole have received grants and awards through 143 different federal programs representing a spread of 32 federal agencies. A list of these is included as an addendum to this paper.

Systematic Proposal Programs

It is therefore reasonable to affirm the logic of a new perspective: Since Black institutions in the past have poorly benefitted from federal subsidies and there is sufficient promise for the present that this situation can be improved, a systematic approach to proposal writing should receive serious consideration by each institution. This approach involves an orderly procedure of strengthening the capacity and depth of proposal writers on the local campus, seeking project support in all the target areas of institutional life where possibilities exist and setting up a federal relations office in every true sense of the word to undergird the colleges' efforts.

FEDERAL RELATIONS OFFICE

A federal relations office is a must for four important reasons. First, every college or university needs an on-campus expert who will be proficient in identifying funding sources. Within the wide reach of the federal government there are more than 1,000 existing programs, administered by more than 60 different departments, independent agencies, commissions and councils. The average faculty person working alone can be simply overwhelmed by where to begin his search for project support. A specified person on the campus, having full responsibility for federal relations, and continuously exploring federal program possibilities, will enable his school to zero in on the target and formulate proposals with a decided advantage.

Secondly, the federal relations office is a valuable center of much-needed information. A well-regulated office will contain, first of all, a federal reference library. This library will include the Catalog of Federal Domestic Assistance and other basic references, copies of federal legislation, agency guidelines and other information pieces in reference to various programs that will enable the prospective proposal writer to focus on specific programs that match his ideas for a project.

Thirdly, a good federal relations office will cultivate a relationship with the faculty that will get and hold their interest in submitting proposals. The federal relations officer will meet separately with various academic departments to gain insights about their problems and desires. He will talk with some individuals informally and counsel them on the specifics of proposal formulation and direct them to funding possibilities on the basis of his investigations and research.

Fourthly, the federal relations office will be the center for coordinating a campus-wide target program designed to cover eventually every area of college or university operations as an educational enterprise. Simply, the grants council, as designers of the program, will ask the question: How many facets of our institutional life can be affected with some federal support program? What are we doing or what can we do in each of the following areas:

- Undergraduate students
- Graduate students, if any
- Faculty and staff improvement
- General and curricular improvement
- Facilities improvement
- In-service professional improvement
- Basic research
- Community-oriented programs
- Pre-college students

Finding answers to this question is the heart of systematic proposal formulation.

Proposal Writing Process

As we turn now to consider the individual faculty member and the proposal writing process, we will focus on the proposal writing workshop which MCSB has undertaken as a way of increasing proposal capability on the local campus. These workshops are designed essentially to increase individual proficiency on the part of those persons who have had little or no experience with forumlating proposals, but will provide more experienced persons with some much-needed time in which to sit down in a retreat atmosphere and do some real, constructive thinking.

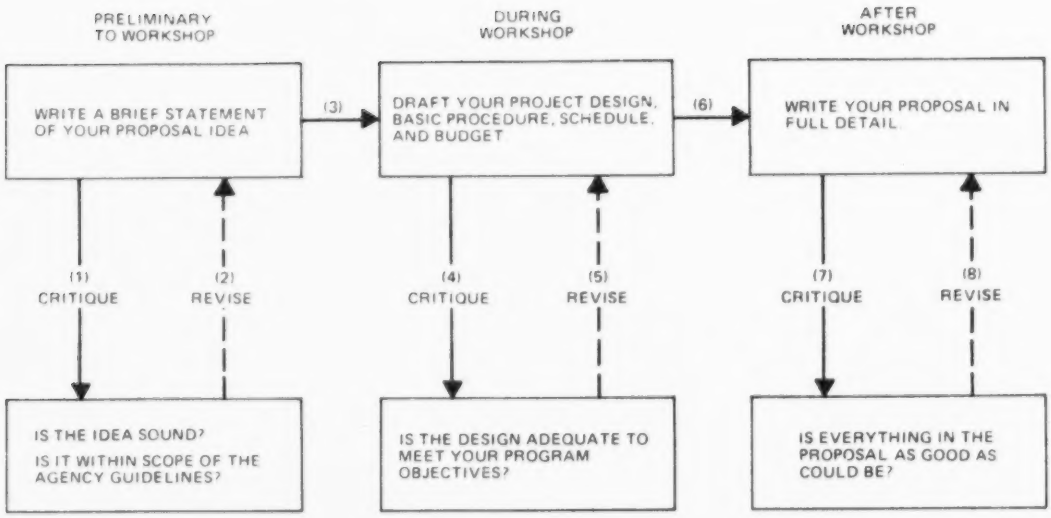
PRELIMINARY TO WORKSHOP
DURING WORKSHOP
AFTER WORKSHOP
WRITE A BRIEF STATEMENT OF YOUR PROPOSAL IDEA
(3)
DRAFT YOUR PROJECT DESIGN, BASIC PROCEDURE, SCHEDULE, AND BUDGET
(6)
WRITE YOUR PROPOSAL IN FULL DETAIL
(1) CRITIQUE
(2) REVISE
(4) CRITIQUE
(5) REVISE
(7) CRITIQUE
(8) REVISE
IS THE IDEA SOUND?
IS IT WITHIN SCOPE OF THE AGENCY GUIDELINES?
IS THE DESIGN ADEQUATE TO MEET YOUR PROGRAM OBJECTIVES?
IS EVERYTHING IN THE PROPOSAL AS GOOD AS COULD BE?

Figure IV-2. Flow Chart for Proposal Writing Workshop

The workshop pattern consists of two full days, achieving the following specific objectives:

- Participant becomes aware of the process by which he matches his proposal idea with a federal program as a possible source of funds
- He develops some insight regarding techniques and fundamentals in proposal writing
- He actually begins writing a proposal which has possibilities of being supported
- He intends to submit the proposal to the appropriate federal agency

In these workshops we do not assume by any means that a fully developed proposal will result from any individual's two-day efforts. We therefore divide the work into three phases: preliminary to the workshop; during the workshop and after the workshop. Prior to setting a date for the proposal, the federal relations officer should receive from each prospective participant a brief written statement of his proposal idea. By consulting the Catalog of Federal Domestic Assistance and other informational materials in the local federal reference library, the federal relations officer can determine if that particular idea has a possible source of funds, what the program limits are and the ballpark figure for a budget request.

In the meantime, the federal relations officer should secure or make available to each workshopper a manual on proposal writing and copies of proposals (to the extent they are available) for study of form and content. The prospective writer should be thoroughly warned against the common, undesirable and self-defeating practice of attempting to write a proposal by simply copying and readapting the contents of another proposal.

In phase one, preliminary to the workshop, as the prospective participant fashions his proposal idea, he should be encouraged to review it with one or more of his peers, testing:

- If the idea is sound—from the point of view of feasibility
- If it is within scope of the agency guidelines

During the workshop, in phase two, he will draft a design for the project—including an outline of the basic procedure, schedule and budget. This he will review again with one or more persons, testing if the design is adequate to meet his program objectives. After the work-

shop, in phase three, he will write his proposal in full detail. An adequate proposal can be written in from two to three weeks. After he has finished he will give it a critique to see if everything in the proposal is as good as it could be.

The proposal writing workshop will also provide an opportunity for each participant to learn something about the criteria employed by various agencies in evaluating proposals, and what some of the important DO's and DON'T's, with particular emphasis on the DON'T's.

SUMMARY

In summary, we have stated that Black colleges and universities like all other institutions, are constantly seeking funds with which to strengthen, enlarge and expand their institutional opportunities. Since 1958, the federal government has been supplying considerable funds to institutions for higher learning for constructing classrooms, buying equipment, providing scholarships and loans, improving curriculum offerings, conducting research, training faculty and staff and strengthening developing institutions.

Black colleges have lagged behind in benefitting from federal support funds at an unreasonable pace; but there are indicators for the present that the pace is being accelerated. We are therefore suggesting that, as we and those who are our friends become more articulate on the political front in nudging the federal agencies on to more and quicker responsiveness, we might very well at the same time, engage in a systematic approach to proposal writing to take greater advantage of the federal programs we have as present opportunities.

Federal Support Awarded to Black Colleges and Universities, by Agency and Program, with Comparative Amount for all Institutions: Fiscal Year 1970

Agency and Program	Amount Awarded
AGENCY FOR INTERNATIONAL DEVELOPMENT	
Central Research Grants	$ 2,000
Institutional Grants	100,000
Black Colleges and Universities (2 Programs)	$ 102,000
All Institutions (2 Programs	$ 10,875,000
ATOMIC ENERGY COMMISSION	
Physical Research (Research and Development	$ 149,000
Biology and Medicine (Research and Development)	23,000
Training, Information, and Education	
Fellowships and Traineeships	24,000
Assistance to Schools (Training Grants)	6,000
Black Colleges and Universities (4 Programs)	$ 202,000
All Institutions (14 Programs)	$ 114,485,000
DEPARTMENT OF AGRICULTURE	
Extension Programs in Agriculture, Home Economics, and Related Subjects	$ 360,000
Extramural Research	216,000
Specific Research Grants	363,000
Agricultural Economic Research	5,000
Forest Research and National Forests	183,000
Black Colleges and Universities (5 Programs)	$ 1,127,000
All Institutions (9 Programs)	$ 179,825,000
DEPARTMENT OF COMMERCE	
Technical Assistance Programs for Economic Development	$ 295,000
Black Colleges and Universities (1 Program)	$ 295,000
All Institutions (2 Programs)	$ 3,609,000
DEPARTMENT OF DEFENSE	
Active Duty Civilian School Program	$ 29,000
Reserve Officers Training Corps	112,400
Intelligence and Communications	400
Research and Development	21,500
Civil Defense	35,300
Black Colleges and Universities (5 Programs)	$ 199,200
All Institutions (5 Programs)	$ 324,751,600

Agency and Program	Amount Awarded
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE	
Office of Education	
Bureau of Higher Education:	
Educational Opportunity Grants	$ 17,294,400
College Work-Study Program	18,894,000
National Defense Student Loans	11,218,200
Talent Search	447,400
Upward Bound	4,744,100
Special Services for Disadvantaged Students	2,182,000
Strengthening Developing Institutions	17,013,700
Land-Grant Colleges and Universities (Morrill-Nelson and Bankhead-Jones Acts)	1,431,300
Cooperative Education Programs	750,000
Training Programs for Higher Education Personnel	
(EDPA, Part E—Institutes)	955,400
(EDPA, Part E—Fellowships)	146,000
Community Service and Continuing Education	253,600
Higher Education Facilities and Construction Loans	525,000
Facilities Construction (Annual interest grants)	161,000
Undergraduate Facilities Construction Grants	1,084,000
Graduate Fellowships (NDEA Title IV)	137,000
U.S. Loan Program for Cuban Students	4,400
Black Colleges and Universities (17 Programs)	$ 77,197,300
All Institutions (18 Programs)	$ 749,800,000
Institute for International Studies:	
Foreign Language and Area Research	$ 15,200
Foreign Language and Area Centers	75,500
National Defense Foreign Language Fellowships	41,600
Foreign Language Extension	23,500
Black Colleges and Universities (4 Programs)	$ 140,600
All Institutions (6 Programs)	$ 14,352,000
Bureau of Adult, Vocational, and Technical Education:	
Adult Education	$ 249,000
Black Colleges and Universities (1 Program)	$ 249,000
All Institutions (1 Program)	$ 1,989,000
Bureau of Libraries and Educational Technology:	
College Library Resources Program	$ 298,000
Institutes for Training in Librarianship	85,000
Fellowships for Training in Librarianship	25,000
Black Colleges and Universities (3 Programs)	$ 408,000
All Institutions (3 Programs)	$ 13,785,000

Agency and Program	Amount Awarded
Bureau of Education for the Handicapped:	
Education for the Handicapped (Training Grants)	$ 364,700
Education for the Handicapped (Research and Development)	25,000
Black Colleges and Universities (2 Programs)	$ 389,000
All Institutions (2 Programs)	$ 33,202,800
Bureau of Elementary and Secondary Education:	
Civil Rights Education Activities	$ 290,200
Black Colleges and Universities (1 Program)	$ 290,200
All Institutions (1 Program)	$ 8,531,200
Bureau of Educational Personnel Development:	
Teacher Corps	$ 580,000
Vocational Education Cooperative Arrangements	349,700
Training Programs for Education Personnel	4,501,500
Black Colleges and Universities (3 Programs)	$ 5,431,200
All Institutions (5 Programs)	$ 56,181,500
National Center for Education Research and Development (NCERD)	
Training Design Studies	$ 39,400
Arts and Humanities Program	16,000
Summer Institutes	40,700
Regional Research	30,000
Elementary and Secondary Research	124,000
Higher Education Research	16,000
Black Colleges and Universities (6 Programs)	$ 266,100
All Institutions (16 Programs)	$ 18,038,600
HEW: Environmental Health Service	
Occupational Safety and Health Research Projects	$ 30,000
Community Environmental Management R&D Contracts	6,000
Radiological Health Research Projects	21,000
Air Pollution Research Grants	3,000
Black Colleges and Universities (4 Programs)	$ 60,000
All Institutions (19 Programs)	$ 22,960,000
HEW: Health Services and Mental Health Administration	
National Institute of Mental Health:	
Training Grants	$ 1,173,000
Research Grants	92,000
National Center for Health Services R&D	
Grants and Contracts	104,000

Agency and Program	Amount Awarded
Community Health Service:	
Health Services Development Projects	$ 1,370,000
Maternal and Child Health Service:	
Health of School and Preschool Children	$ 286,000
Maternity and Infant Care	335,000
Maternal and Child Health and Crippled Children Special Projects	626,000
Regional Medical Programs Service:	
Grants	1,384,000
Contracts	40,000
Center for Disease Control:	
Communicable Diseases R&D Grants	166,000
Black Colleges and Universities (10 Programs)	$ 5,576,000
All Institutions (15 Programs)	$ 243,104,000
HEW: National Institutes of Health	
Professional Nurse Traineeships	$ 54,000
Research Fellowships	25,000
Research Training Grants	425,000
Research Career Programs	38,000
General Research Related Support	216,000
Medical Library Grants	35,000
Program Projects and Centers	391,000
Research Contracts	200,000
Project Grants for Graduate Training in Public Health	75,000
Allied Health Improvement Grants	111,000
Research Projects	686,000
Grants to Health Professions Schools and Schools of Public Health	5,063,000
Health Professions and Nursing Scholarships, Loans	907,000
Applied Training	38,000
Dental Auxiliary Utilization Program	137,000
Nursing Special Project Grants	345,000
Black Colleges and Universities (16 Programs)	$ 8,748,000
All Institutions (20 Programs)	$1,041,710,000
HEW: Social and Rehabilitation Service	
Research and Development Programs for the Aging	$ 30,000
Training Grants Program	148,000
Child Welfare Training	157,000
Training Efforts in Mental Retardation	75,400
Social Work Manpower	401,400
Black Colleges and Universities (5 Programs)	$ 813,100
All Institutions (11 Programs)	$ 52,125,700

Agency and Program	Amount Awarded
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	
Developing Institutions Program	$ 308,000
Project Research	332,000
Black Colleges and Universities (2 Programs)	$ 640,000
All Institutions (2 Programs)	$ 131,231,000
NATIONAL ENDOWMENT FOR THE ARTS	
Poets in Developing Colleges	$ 30,000
Visual Arts	3,000
Black Colleges and Universities (2 Programs)	$ 33,000
All Institutions (11 Programs)	$ 367,400
NATIONAL ENDOWMENT FOR THE HUMANITIES	
Education Projects	$ 150,700
Faculty Development	98,400
Fellowships for Study in Selected Fields	28,500
Research Grants	14,000
Black Colleges and Universities (4 Programs)	$ 291,600
All Institutions (6 Programs)	$ 4,775,500
NATIONAL SCIENCE FOUNDATION	
Scientific Research Project Support	$ 157,000
National Research Program	4,000
Computing Activities in Education and Research	
Operating Expenses	69,000
Research and Development	175,000
Institutional Grants for Science	243,000
College Science Improvement Program	70,000
Cooperative College-School Science Program	70,000
Special Projects	100,000
Institutes and Research Participation for Teachers	2,102,000
Science Education for Students	53,000
Instructional Equipment for Undergraduate Education	72,000
Science Education for Students (Undergraduate)	9,000
Fellowships and Traineeships	62,000
Black Colleges and Universities (13 Programs)	$ 3,185,000
All Institutions (28 Programs)	$ 361,459,000
OFFICE OF ECONOMIC OPPORTUNITY	
Emergency Food and Medical Service	$ 150,000
Legal Services	381,000
Legal Services Training and Technical Assistance	2,840,000
Special Summer Programs	28,000
General Staff Training	131,000

Agency and Program	Amount Awarded
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT	
College Housing Direct Loan	
Reservations	$ 3,420,000
Obligations	5,440,000
Debt Service Grants	
Reservations	424,900
Obligations	22,800
Model Cities	669,900
Urban Research and Metropolitan Community Service Projects	32,000
Black Colleges and Universities (6 Programs)	$ 10,009,000
All Institutions (6 Programs)	$ 132,149,200
DEPARTMENT OF THE INTERIOR	
Water Resources Reasearch	$ 30,200
Pollution Control Operations and Research	77,600
Black Colleges and Universities (8 Programs)	$ 107,800
All Institutions (15 Programs)	$ 32,585,900
DEPARTMENT OF JUSTICE	
Law Enforcement Education Program	$ 489,100
Black Colleges and Universities (1 Program)	$ 489,000
All Institutions (1 Program)	$ 20,979,000
DEPARTMENT OF LABOR	
New Careers	$ 95,900
Manpower Development and Training Programs	1,398,200
Work Incentive Program	18,200
Staff Training	10,800
Manpower Research Institutional Grants	154,000
Job Corps Student Teaching Project	9,000
Manpower Research Contracts	84,400
Experimental Demonstration Projects	20,000
Black Colleges and Universities (8 Program)	$ 1,790,500
All Institutions (17 Programs)	$ 41,972,300
DEPARTMENT OF TRANSPORTATION	
Research in Urban Mass Transportation	$ 194,000
Training in Urban Mass Transportation	261,000
Black Colleges and Universities (2 Programs)	$ 455,000
All Institutions (2 Programs)	$ 10,148,000

Agency and Program		Amount Awarded
General Research		$ 90,000
Pilot Programs		427,000
High School Equivalency Program		5,000
Migrant Education		923,000
Migrant Training and Technical Assistance and Evaluation		214,000
Black Colleges and Universities (10 Programs)		$ 5,189,000
All Institutions (21 Programs)		$ 33,945,000
PEACE CORPS		
Peace Corps Trainees for Kenya		$ 499,500
Peace Corps Trainees for Eastern Caribbean		174,300
Master's Degree Internships		249,900
Black Colleges and Universities (3 Programs)		$ 923,700
All Institutions (3 Programs)		$ 7,467,000
VETERANS ADMINISTRATION		
Veterans Benefits Operating Expenses		$ 29,000
Black Colleges and Universities (1 Program)		$ 29,000
All Institutions (1 Program)		$ 1,508,000
Total Amount Awarded:		
Black Colleges and Universities	143 Programs	$ 124,636,300
All Colleges and Universities	262 Programs	$3,668,032,700

Data from, *Federal Agencies and Black Colleges*, Federal Interagency Committee on Education, 1970.